

# HP Professional

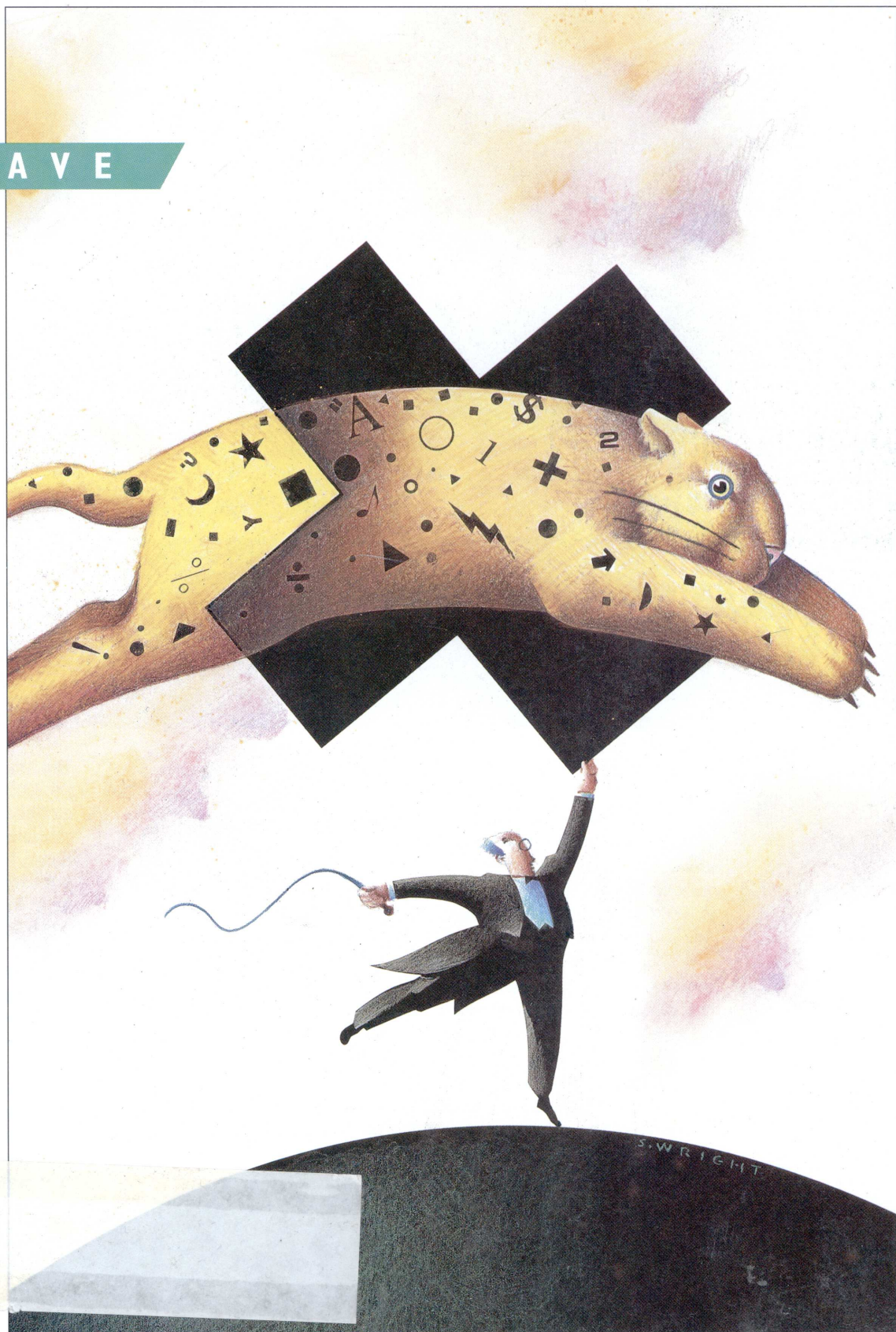
THE INDEPENDENT MAGAZINE FOR NEWWAVE COMPUTING ▲ VOL.5 NO.5

▲ MAY 1991 ▲

NEW WAVE

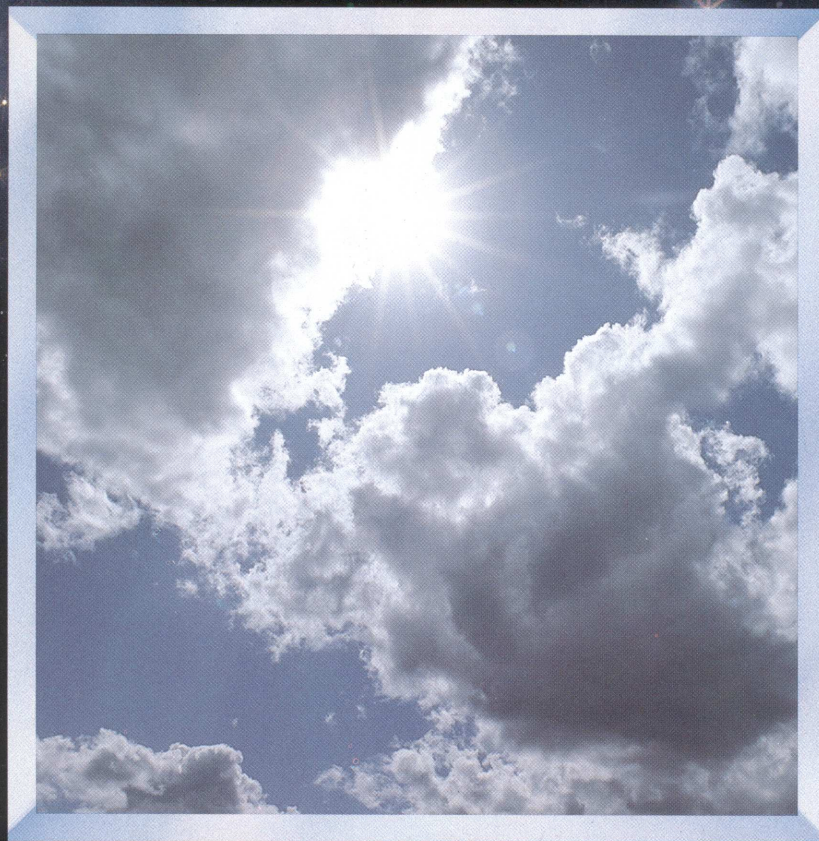
## User Environments

- ▶ Everything You Always Wanted To Know About X
- ▶ The Point Of VUE—Bring NewWave Computing To The UNIX Environment
- ▶ Need A GUI? Do It Yourself With Interface Design Tools
- ▶ Optical Opulence Accommodates Today's Lavish Applications





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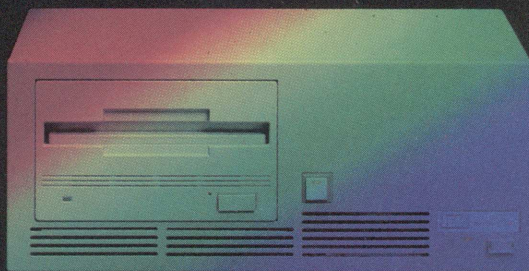


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# C O N T E N T S

MAY 1991

VOL. 5, NO. 5

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## X Appeal

By Gordon McLachlan

How open is X? It's so open that anyone with a modem or tape drive can get all of the source code from MIT for the price of a phone call or tape copying fee. Anything else you wanted to know about X but were afraid to ask?

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The days of struggling through an unfriendly UNIX user interface are gone — thanks to HP VUE. This graphical user interface is the first step toward bringing NewWave Computing to UNIX environments.

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By Ron Levine

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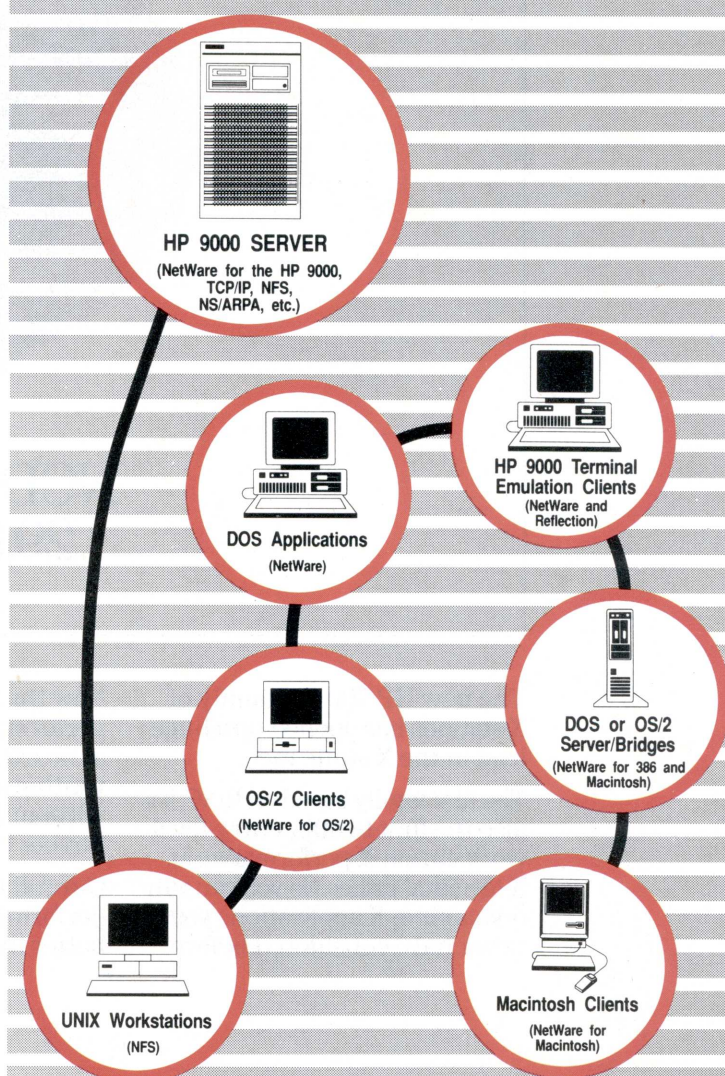
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# The Bull's-Eye View

Some people are never satisfied. It's a complaint you hear often from computer vendors, especially when they're talking about their installed base. Fortunately for HP users, however, just the opposite is true of Hewlett-Packard. In fact, given the company's recent spate of high-performance product introductions, HP is one vendor that counts on its users to demand more computing power for fewer computing dollars.

Still, some people, myself included, are never satisfied. In the face of HP's stunning successes, you're probably wondering just what my gripe could be. Extraordinary PA-RISC workstations, savvy RISC-based X terminals, sharp X performance improvements, revamped, Apollo-style marketing—every one of these topics has been discussed, debated, sometimes even demanded in the pages of *HP Professional*. And in every instance, HP has delivered.

My beef is that despite the rekindled fire in HP's corporate belly, people still associate Hewlett-Packard with that lumbering, old purveyor of oscilloscopes and reverse Polish notation calculators.

Perhaps HP needs to do something like what Sun is doing with its TV ad campaign for client-server computing. (You know, the ads where you feel like you're on the tip of an arrow flying through the woods until you finally whack into a bull's-eye and, hopefully, get the idea that client-server means something desirable.)

I know what you're thinking: Nobody learns one wink about client-server from such nonsense, so why should HP bother? The answer is simple. In order to regain workstation dominance, HP must demonstrate to a wider public that it, like Sun, offers effective business solutions based on workstations in client-server environments.

The fact is that HP's current offerings surpass those from Sun by a long shot, and from its long history of HP 3000 and 9000 success, it already has a far greater presence than Sun in commercial markets. The problem is that almost nobody has a solid grip on just how strong a commercial competitor HP is.

## More Than Numbers

Witness the general reception of the Series 700. Everyone who has evaluated these wonder-boxes agrees that they are the most significant product announcement of 1991—IBM's heavy-weight laptops and Data General's pizza boxes notwithstanding.

Almost everyone agrees that no competitor can catch HP in workstation performance this year. Yet few people perceive the Series 700 as a competitor in business environments. Fewer still recognize HP's potential to unlock the PC's vice grip on the desktop. The Series 700 could finally provide business users with a truly functional point of access to larger information networks.

HP's Jeff McNair, product marketing manager for the Workstation Systems Division, estimates that the total technical workstation market will grow at a rate of 20 percent for 1991. That's pretty substantial growth all right, but it doesn't hold a candle to the 55 percent growth McNair anticipates for commercial workstations. Obviously, this is the area where HP needs to compete.

It's crucial to HP's workstation comeback bid, that these new machines be perceived not only as superlative technical stations, but also as ideal servers or even desktop systems for business users of all kinds. They ought to conjure up images of secretaries plugging happily away at spreadsheets, typing up letters, desktop publishing reports, and updating database files—each application running concurrently in its own window, all on an X terminal hanging off a Model 750.

When you consider that the current debate among users, MIS managers and purchasing agents centers not only on issues of performance, but also on concerns about departmental autonomy, cost per seat, and overall cost of ownership, there can be little doubt that HP needs to push more than its spectacular numbers.

## Say It Loud

It's an exciting time to be an HP user and to watch the Hewlett-Packard market grow. I guess it seems ungrateful to gripe amidst this embarrassment of technological riches, but at *HP Professional* we've been eyeing the client-server segment of NewWave Computing for too long to let it slip quietly out of the limelight.

Right now, HP is a company that's tuned itself for client-server's lean, tough markets. Think about it. Practically every product the company has recently introduced offers industry-leading technology for distributed computing environments. HP is, at least for the time being, knocking the stuffing out of Sun, as well as DEC and IBM, when it comes to one good old-fashioned idea: deliverables. It's a point worth driving home, and HP ought to say it loud. Sun may be running the TV ads, but from our standpoint, it's HP that has hit the target.



## Correction

Bering Industries was inadvertently omitted from last month's article on helical-scan tape storage, "Tape Wars: 8mm vs. DAT." Bering offers removable mass storage solutions, including hard-disk drives, magneto-optical erasable drives and high-capacity tape backup for HP 3000, 9000 and 1000 users. *HP Professional* regrets the error.

For more information, contact Bering Industries, 246 East Hacienda Avenue, Campbell, CA 95008; (800) 237-4641 or (408) 379-6900.

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## INDUSTRY WATCH

Bill Sharp

With all the MIPSSPECSM-FLOPS leaping through last month's issue of *HP Professional*, I feel the need for a more subjective measure of workstation performance. The new HP Apollo 9000 Series 700 PA-RISC workstations are an impressive jump into the market, but what do they mean to hardened workstation watchers well used to seeing one vendor after another spring ahead into prominence?

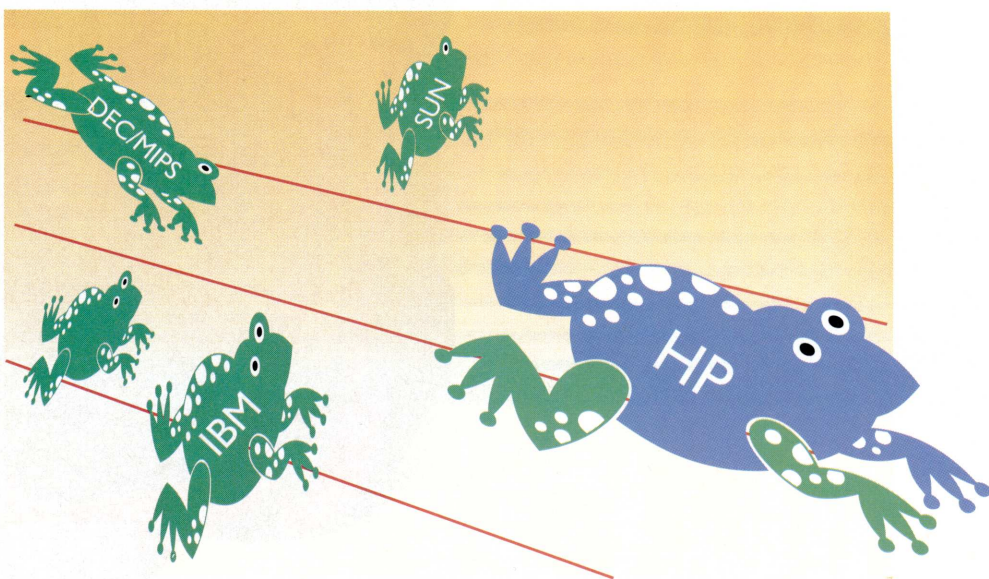
Numerous analysts are currently croaking comments about HP's leap-frogging the competition, I've decided to slap down a measuring stick in this competitive swamp and see just how far the frog has flown. We'll put numbers in to keep the analytical types comfortable. With modest fanfare, I hereby introduce an only marginally useful measure, the Flying Frog Fix of Workstation Technological Leapism Potential—FFFWTLP for short.

During its long history of about 30 minutes now, the Flying Frog Fix has always gathered the numbers from which the fix is derived by speaking with entirely legitimate and influential computer consultants and industry sages of renown. We at the FFF Consortium, supported by industry donations (please feel free), have interviewed several of these experts at length to compile the following information. All of them have been fully briefed on the Series 700.

### In Lane Number One...

Chuck Barney, analyst for WorkGroup Technologies, ranks workstation technology leadership this way: Sun has dropped from 8 to 6, IBM has jumped from 2 to 7 with its own introduction, HP has leaped from 6 to 9, while DEC/

# Frog Eat Frog Market



MIPS has stayed at 6.5. Simply noted: HP: 9, IBM: 7, Sun: 6, DEC/MIPS: 6.5. This gives you some idea of how the Flying Frog Fix ratings numbers work — a 10 would be the tops (and trust me, you won't see one here).

Consultant Charles Casale, president of the Aberdeen Group, gives HP a good shot at reaching number one in the workstation market during 1992, thanks to the Series 700. In technology leadership, he currently ranks workstation vendors in this order: IBM, HP, Sun and DEC/MIPS. Casale wouldn't give us numeric values for his rankings, so I've arbitrarily assigned numbers, which I won't reveal either, based on his comments. Suffice it to say, I've factored these into the totals shown below.

Andrew Allison, analyst, consultant and editor of the *RISC Management Newsletter*, Los Altos, CA, says the 700's performance is "impressive" and its pricing is "very aggressive." "These are excellent products and certainly they will put the world on notice that HP is back

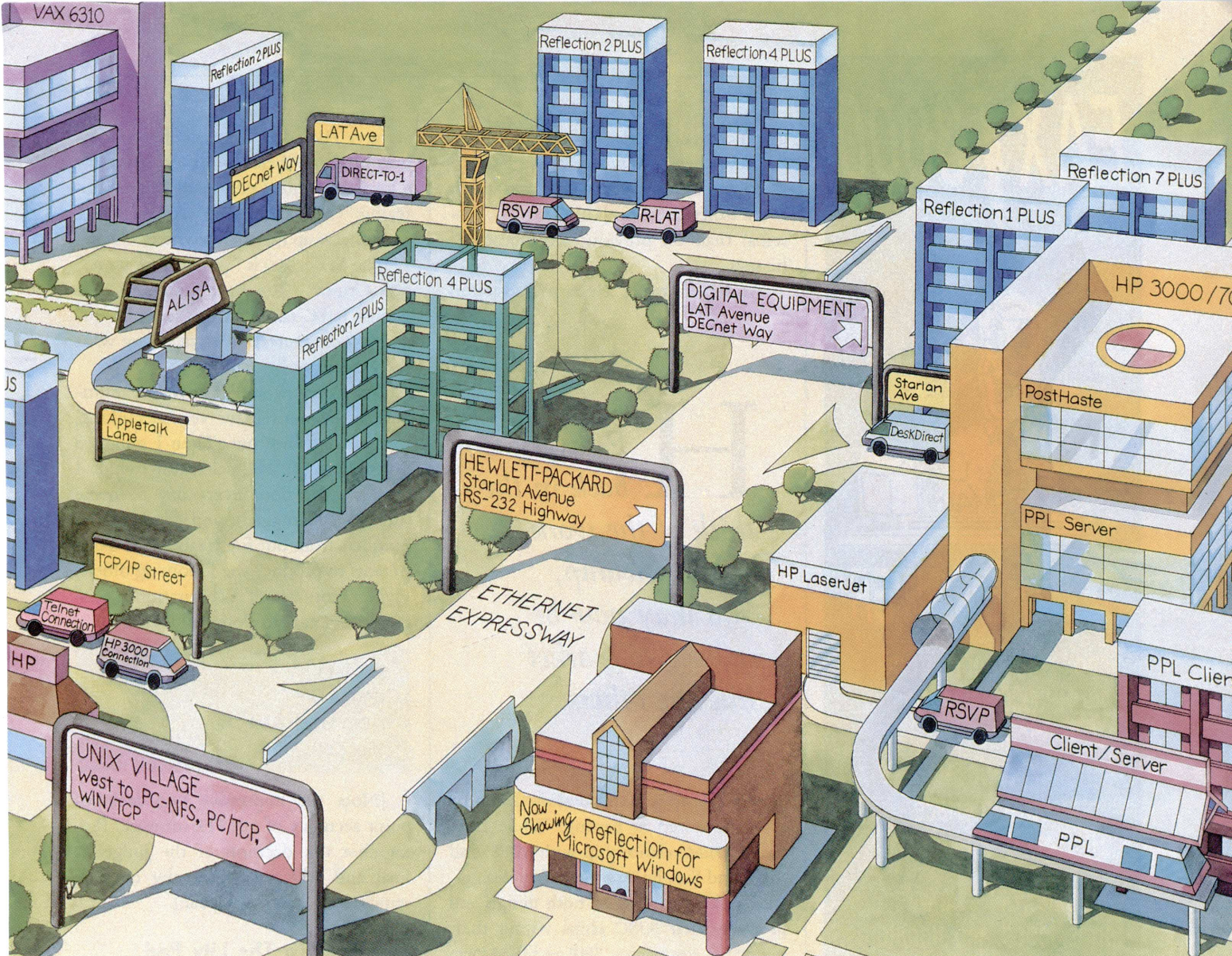
in the workstation business," he says.

HP has six months to a year of workstation performance leadership ahead of it, but it has a tough challenge even so, Allison says. "The 700s are very well engineered products and well positioned. The real issue here, however, is marketing. HP has a tradition of designing great products and waiting for the world to beat a path to its door. That's not the nature of the workstation market. Success here will be a reflection of HP's marketing effort."

But for now in workstation technology, HP has the lead according to Allison. Deriving technological rankings from SPECmark integer performance figures, Allison happily ranked the vendors for us. Like some of our other consultants, however, he requested that we keep his individual rankings under wraps. My lips are sealed.

Ken Anderson, publisher of the *Anderson Report* and an important participant in developing workstation





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graphics benchmarks, is also impressed. "I think there is a whole class of CAD/CAM applications that will run as much as *ten* times faster on [HP Series 700 systems] than on previous workstations," he says.

Anderson made clear a distinction

**H** *P clearly is back in the thick of the workstation swamp, and may now be willing to market like the others.*

between workstation vendors that others have noted in passing. While DEC has an OEM relationship with MIPS, and MIPS and Sun license their chip designs, IBM and HP choose to both design and produce their RISC chips within their respective companies. "HP and IBM have total control over the semiconductor process, which in the long haul gives them some real advantages," he says.

Because of this advantage, Anderson rates IBM and HP in a very high tie. He rates MIPS ahead of Sun on technology, and both of them behind IBM and HP, but not far back. In keeping with the rigorous exactitude of this discussion, I jumped to my own conclusions, interpreting Anderson's comments as ratings of — sorry these are secret, too.

To keep things entirely fair, without a hint of favoritism, I furiously backed Barry Crume, HP's Series 700 worldwide launch manager (love that title) into a corner, forcing him to give me rankings for the workstation technology jumpathon—well, I tried, anyway. He wouldn't budge, wouldn't take off the white gloves. He did say that he would

not give HP a 10. "The whole workstation market is based on users asking for a lot more, and if you are a 10 you quit trying." He does seem to want HP ranked way up there somewhere, though.

The Series 700 is "a 10 for the users," says Crume. "We have a binary-compatible RISC family with the Series 700 and 800 computers. We are selling what the users want."

But Barry wouldn't give me numbers, or even a relative vendor ranking, so I just left him out. Then I whipped out my old HP 11C calculator (which I drop on the floor every day to make sure it's still rugged), and averaged the numbers from our four fearless FFF consultants to produce the following official Flying Frog Fix of Workstation Technological Leapism Potential (FFFWTLP):

HP: 9.13  
IBM: 8.58  
DEC/MIPS: 6.00  
Sun: 6.00


[Note the impressive two-decimal-point accuracy of our FFF measure. Remember the decision of the judges is final and will not under any circumstances be subject to appeal.]

### Last One To The Lily Pad...

A final note, none of these major vendors is out of the workstation race. HP's lead is in all likelihood a temporary one, even if it does last a few months. But HP clearly is back in the thick of the workstation swamp, and may now be willing to market like the others, which means slinging some of that great, gushy mud now and then. As you can tell by those Sun, DEC and IBM bashing workstation ads, HP is learning to fight dirty just like the other big boys.

Ken Anderson suggests that if we conduct this same rating again a few months from now, the results might be completely different. He assures us this market will continue to be "a real dogfight." I'd like to think he meant frogfight. ■





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CIRCLE 190 ON READER CARD



## HP Offers RISC Performance On X Stations

*The 700/RX Series Provides Look And Feel Of A Workstation*

**H**P's newly announced HP 700/RX series of RISC-based X stations further blurs the distinctions between the performance of X stations and "real" workstations.

According to Michael Ludgate, product manager for HP's Panacom Automation Division, HP is the "the first to introduce RISC performance (on an X station) that provides the look and feel of an entry-level workstation."

Based on Intel's i960 RISC processor, the new offerings have a theoretical bandwidth of 500 KBps for fast processing of X protocols and snappy user response.

Initially, the RX will be available in four different configuration bundles with different display, memory and processor features.

The 700/RX Model 19Ca and Model 16Ca are color stations that use the Intel 80960Ca chip. The Model 19Ca has a 19-inch display and 1280 by 1024 resolution. The Model 16Ca has a 16-inch display and 1024 by 768 resolution. Both display 256 simultaneous colors from a palette of 16.7 million colors. Standard DRAM memory on both models is 4 MB.

The 700/RX Model 16Ci and the Model 19Mi are based on the slightly slower Intel 80960Ci processor. The Model 16Ci has the same display capabilities as the Model 16Ca and 2 MB DRAM. The Model 19Mi provides a true-monochrome (1-bit) display with 1280 by 1024 resolution and 2 MB standard memory.

The HP 700/RX models use X11R4 server software, which may be downloaded from the host system, or executed from optional ROM cartridges.

The RX stations have standard 10 MB Ethernet



*HP's 700/RX Series of RISC-based X stations.*

Prices for the HP 700/RX family range from \$2,995 for the 19-inch monochrome Model 19Mi with 2 MB of DRAM, to \$5,995 for a Model 19Ca with a 19-inch color monitor and 4 MB of DRAM. All RX stations may be up-

graded to a maximum 18 MB DRAM using 1, 2, 4 or 8 MB DRAM SIMMs.

HP will provide an upgrade program allowing users to upgrade RX stations or use them as trade-in credit toward HP 9000 workstations. —Gordon McLachlan, *Networking Editor*

ports for both Attachment Unit Interface (AUI) cables and BNC-connected thin-wire Ethernet. Also, 10 Base T EtherTwist connections are supported, and TCP/IP protocols and DoD Telnet services are provided. Diagnostics and configuration utilities are built-in.

## Motorola Shipping 68040 In Volume

*Offers Three To 10 Times The Performance Of 68030*

**T**he Microprocessor and Technologies Group of Motorola announced volume shipments of its 68040 (040) microprocessor.

More than 100 companies sampled early versions of the 040, including 36 computer system and board manufacturers. The 040 provides performance improvements for

HP Apollo workstations and has been long-awaited for use in the combined platform HP Apollo 400 series.

The 68040 embodies a complete redesign of the 68000 family architecture, helping it deliver from three to 10 times the performance of the 68030 while remaining 100 percent software compatible with all other 68000 family members.

Executing 20 mips and 3.5 mflops at 25 MHz, the 040 has the highest throughput of any available mainstream CISC microprocessor, performing up to 14 operations simultaneously. It outperforms both CISC and RISC microprocessors like the Intel 80486 and Sun SPARC.



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**CIRCLE 281 ON READER CARD**





## Trinary, M.B. Foster Sign VAR Agreement

### *M.B. Foster To Resell EDI Windows*

**T**rinary Systems (Livonia, MI) announced the signing of a VAR agreement with M.B. Foster Associates (Chesterville, Ontario) for Trinary's EDI Windows. According to the terms of the agreement, M. B. Foster will market EDI Windows on the HP MPE/XL, HP-UX and SCO XENIX platforms.

EDI Windows, which is also available for the DEC VAX, is an EDI control and translation package that promises to meet both cus-

tomers and vendor requirements for data interchange. EDI Windows can support concurrently multiple versions of EDI standards, such as X12, EDIFACT, TDCC, UCS and WINS, and can accommodate all trading partner and industry specific subsets. It also offers connections to all public Value Added Networks, as well as most private networks.

Contact Trinary Systems Inc. (800) 347-8711 or M.B. Foster at (800) 267-9377.

## HP, Sun Join Forces

### *Submit Joint Proposal To Object Management Group*

**H**ewlett-Packard and Sun Microsystems, normally fierce competitors, signed an agreement for the development of a common software environment that will be interoperable across multiple platforms.

As part of the agreement, the two companies submitted a joint proposal to OSF's Object Management Group (OMG) for integrating various types of software objects across diverse networks and platforms.

The agreement consists of three parts. The first part is the proposal to the OMG; the second deals with achieving network protocol interoperability between HP's NCS and Sun's ONC network operating systems; the third involves the creation of a common

distributed user interface and application environment.

The joint HP/Sun proposal has been submitted in response to request for proposals (RFPs) that the OMG initiated in the fall of 1990. The HP/Sun proposal consists of an object management specification and addresses the development of the object request broker (ORB), which is the mechanism by which objects will transparently generate and receive requests and responses.

Robert J. Frankenberg, vice president and general manager of HP's Cooperative Computing Group said, "Both HP and Sun believe in the power and advancement of open systems. For the customer this (joint agreement) will enable easy access to information across networks of

## Apex And HP Combine Efforts

### *Demo Factory Builds Customized Demonstrations Of NewWave Computing*

**T**he Apex Group Inc. completed a contract with Hewlett-Packard to develop, distribute and support the NewWave Computing Business Intelligence Demonstration Factory.

The Demo Factory is a NewWave system designed to allow HP to build customized demonstrations of NewWave Computing technologies on workstations communicating with HP 3000 and 9000 servers. The Demo Factory is being installed throughout the American, European and intercontinental sectors of HP.

Contact The Apex Group, 7151 Columbia Gateway Dr., Building F, Columbia, MD 21046; (301) 290-1606.

**Circle 400 on reader card**

multivendor platforms."

Ed Zanders, president of Sun Microsystems newly formed systems software company, SunSoft Inc., said, "Proprietary architectures are not the answer."

Zanders claimed that the differences between HP's and Sun's remote procedure calls (RPCs) could be circumvented by a common Class Definition Language (CDL), which supports the develop-

ment of portable distributed applications across multiple RPC systems.

A total of seven proposals have been submitted to the OMG for the ORB. Besides the HP/Sun joint submittal, proposals were received from HyperDesk Corp., Architecture Projects Management Limited, DEC, DSET Corp., Groupe Bull and NCR Corp. —Kella Knack, West Coast Reporter

## SPEEDWARE/4GL Upgrade Available

### *Infocentre And HP Extend TRANSACT, BRW And ALLBASE/4GL Migration Alternatives*

**I**nfocentre Corp. and HP extended an agreement reached earlier in the year that enables HP users to upgrade to Infocentre's SPEEDWARE/4GL with no product upgrade fee. The agreement now will be in effect until May 31, 1991.

Many TRANSACT, ALLBASE/4GL and BRW users who have been evaluating the

migration alternatives selected SPEEDWARE as the development tool of the future. Recently, many local RAPID user groups have been holding 4GL sessions that pit various 4GL products against each other and allow users to take a technical look at each product. To date, SPEEDWARE has been a product of choice for large numbers of RAPID users.



# Massive Storage

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## SAS Signs Up For Series 700s

### *Just How Good Are Those New Workstations?*

**T**he new HP PA-RISC series 700s are so good, they stopped a major software company on the verge of buying a whole fleet of systems from somebody else.

Applications software vendor SAS Institute (Cary, NC) says it will purchase "about 400 workstations and about 20 servers," all of them from the HP Apollo 9000 700 series. SAS workstation marketing manager, Randy Betancourt, says winning the sale meant meeting "very rigorous criteria." In order to keep expanding its applications software offerings, SAS needed to retire its aging family of Apollo workstations.

"We talked to every RISC supplier in the industry and made it known that we were preparing to retool our entire software development environment. All the vendors came in and said what was happening to their product lines over the next year and a half to two years." SAS looked at raw CPU performance, I/O performance, FDDI availability for servers, distributed file system performance and ease of supporting the systems with SAS personnel.

Betancourt considers the 700 series' performance "outstanding," but also notes as an important feature HP Apollo's clean design. "It's one of the hallmarks of HP engineering. If you look at other packaging, there's nothing else quite as clean as this."

Porting SAS software to the new systems is already well underway and SAS re-

ports no problems. Says Betancourt, "We now have something with an open architecture, that gives us a lot more choices in the future with very little concern about migration issues."

What about the people actually working with the new system? Jerry Pendergrass is a systems developer with the UNIX host group at SAS. He's porting software over to the 700 products in preparation for the new CASE network. "This is easily two to three times faster than anything else we have seen," he says. Pendergrass says the 720 is twice as fast as the SPARCstation 2 and MIPS' R3000-based systems he has tested, and it actually runs toe-to-toe with an IBM 3090 running one processor.

"It runs in about the same range as the 3090 and in some instances actually beats the 3090. I come from a main-frame computer background, where six mips is really cranking. This boggles my mind. HP does a lot to make it very usable, very easy to configure, very simple to operate. It hasn't crashed on me once, and with beta software, you would expect more problems."

What about the future? "The [performance] jump that we get on this will last for a long time," says Pendergrass. "Once you get this kind of speed, a bit more is not going to make much difference." —*Bill Sharp, Technical Editor*

## For Your Information

■ Saber Software announced that initial sales of its new C++ programming environment, Saber C++, have exceeded one million dollars in the first 45 days of shipments.

■ HP announced U.S. list price reductions up to 16 percent on its HP 700/X family of X window terminals, and also reductions on user modules for the HP 700/X terminals ranging from 8 to 25 percent.

■ MICOM Communications Corp. announced a free brochure, "Free Voice and Fax Over Low-Cost WANS," which serves as an introductory guide to integrated WANS using digital and analog leased lines. Call (800) MICOM US or (805) 583-8600.

■ Leshner Newspapers (Merced County, CA) signed a

license agreement with Collier-Jackson for its World Class Series Newspaper Management Systems.

■ Hewlett-Packard signed a contract for \$63 million with Ford Motor Company to deliver 2,000 service bay diagnostic systems (SBDS) over the next two years. The SBDS, which uses an HP Vectra PC as the main processor, allows service technicians to diagnose and repair intermittent and hard-to-locate electrical problems.

■ Exabyte announced that it received its first format standard from ECMA (European Computer Manufacturers Association). The 8mm format standard, ECMA document #145, applies to the EXB-8200 8mm cartridge tape subsystem.

## HP Distributes HP-UX Software And Applications

### *Compact Disk Is Medium Of Choice For Workstation Users*

**H**P announced two programs to distribute HP-UX operating system and subsystem software and third-party applications on CD-ROM for the HP 9000 Series 300 and HP Apollo Series 400 workstation family.

These two programs join the CD-ROM documentation program, HP LaserROM/UX, that's been available since February 1989.

HP LaserRelease/UX distributes operating-system and subsystem software, HP application software and software updates on CD-ROM. The second program, Software Store for HP, provides a program to market and de-

liver UNIX applications to users of HP and HP Apollo workstations.

HP LaserRelease/UX features the HP-UX 8.0 operating system, select HP Application software, the OSF/Motif GUI and subsystem modules including compilers, as well as networking and graphics programs.

Software Store for HP gives workstation users a simple "point and click" way to review and purchase a wide range of application software. Under the program, HP will provide CDs at no charge to HP workstation users or resellers.



# NOW THAT 10GB FITS ON AN 8MM TAPE, WHAT ARE YOU WAITING FOR?



You don't need to wait hours to change tapes.

You don't need to wait months for other storage technologies to catch up.

One 8mm tape drive will already deliver more than they promise.

It's the digital CY-8200, now with optional data compression. And you can get it exclusively from Contemporary Cybernetics Group.

With data compression, the CY-8200 can quadruple the amount of data you can load on an 8mm cassette that fits neatly in your shirt pocket. Meaning the already tremendous savings in man hours, media costs, storage and shipping are multiplied by four.

Until now, the best 8mm drive on the market stored an impressive 2.5 GB per tape at speeds up to 15 MB per minute.

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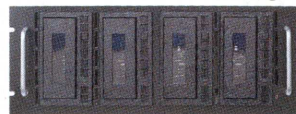
Alliant	DEC 3100	IBM S/36	Pertec
Alpha Micro	DEC HSC	IBM AS/400	Plexus
Altos	DEC Q-Bus	Macintosh	Prime
Apollo	DEC TU/TA81	NCR	Pyramid
Arix	DEC Unibus	Novell	Sequent
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Our data compression option allows you to write up to 10 GB per tape at up to 60 MB per minute. Completely unattended.

Of course, the data compression feature is switch-selectable, so you can turn off data compression to read and write standard 8mm tapes.

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interfaces, a 2-line, 40-column display option, and optional security card encryption. And assuring you of full support and

a 12-month warranty from the leader in advanced 8mm helical scan technology. The CY-8200 with data compression will remain the best value in data storage for a long time to come. So now you've got many good reasons for calling us today at (804) 873-0900 and no good reason for waiting.

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CIRCLE 112 ON READER CARD



# International Insights

## HP Releases Vectra 486/33T In France

### *Improves PC Market Standing*

In France, HP has released several products important to its various market offerings, including the Vectra 486/33T, known as "le serveur universel," the LaserJet IIISi, the HP PaintWriter and a Minitel-based PC and peripherals maintenance service.

HP was the first company to launch a 486 machine in France, in October, 1989, says Frederic Garnier, PC marketing manager. Hence, the 486/33T, with its 4 MB standard RAM and SCSI-II EISA controller, is the ideal platform with which HP can solidify and extend its leading share (20 percent) of the 486 market in France, he says.

HP in Europe has 17.7 percent of the 486 market, 12.9 percent of the 386 market and about 12.6 percent of the 286 market, based on an early 1991 survey by Data Strategies, a PC market research firm. In the overall PC market, HP has a stronger share of revenues, with 6.9 percent in 1990, says

Dataquest Europe. International Data Corp., Paris, says HP realized a 40 percent increase in PC revenues and a 38 percent increase in unit shipments in 1990, while the PC market grew only 17 percent.

HP's strategy is to push the SCSI-based 486/33T for networks and multiuser environments, and the ESDI and embedded AT systems for CAD, database and other advanced users. Between 1991 and 1993, Dataquest Europe expects the highest growth in LAN server PCs, followed by multiuser PCs. HP prices the 486/33T, equipped with the French language, from 66,420FF (U.S., \$12,076) for the low-end Model 1-3, to 124,770FF (U.S., \$22,685) for the Model 1000-3.

The new RISC processor-based, 16 ppm LaserJet IIISi is targeted specifically at the 11 to 20 ppm market segment, of which HP has only a 15 percent share in France. HP hopes to increase that share to 30 percent in 1991, making it more

comparable to HP's position in other printer markets. HP competes mostly with IBM and Kyocera. In France, the LaserJet IIISi sells for 36,990FF (U.S., \$6,725).

In a scheme for maintaining HP Vectras and LaserJets, HP also has inaugurated an expert system to which French users have uninter-

rupted access on the national Minitel videotex system. Based on artificial intelligence technology from Soft Computing, videotex from Vicorp and the expert system generator, Nexpert Object, from Neuron Data, the system is said to be as simple to use as Minitel. —Marsha Johnston, International Editor

## ISA Expands European Presence

### *EURISA Subsidiary*

### *Provides Memory Products To France*

ISA CO. Ltd., (Tokyo) has opened EURISA (ISA EUROPE) in France. The goals of the new company are to enhance and develop existing dealer networks in Europe and to deal with OEMs or wholesalers specializing in the HP environment.

ISA, an HP partner for more than 10 years, designs HP-IB and SCSI mass memory, mass storage and memory cards for HP 1000, Classic 3000, Spectrum 3000 and HP 9000 systems. Business prospects also include resellers, turnkey application houses and integrators of HP minicomputer systems that sell to these sites.

ISA offers more than 70 kinds of hardware and software including memory cards, floppy devices, hard disks to high capacity optical devices, tape units and optical juke boxes.

Products are available for the HP 9000 Series 200/300 running BASIC, PASCAL and HP-UX, HP 9000 Series 400

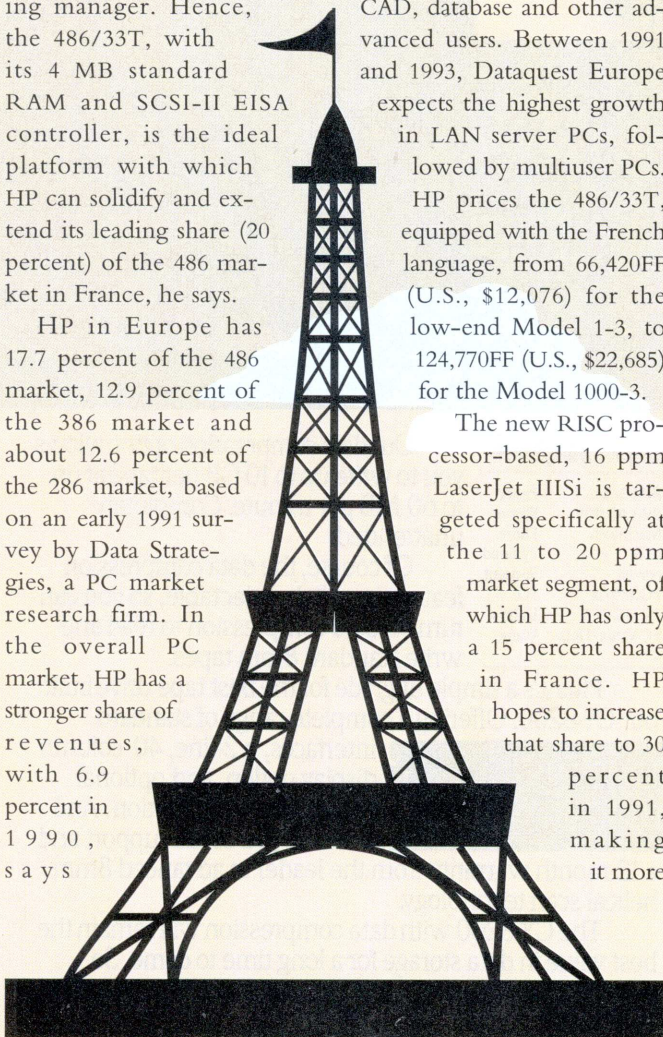
and 800 running HP-UX, the HP 1000 Series A, HP Classic 3000s running MPE V Spectrum 3000s running MPE XL.

Because ISA is able to work closely with Japanese manufacturers, it has the advantage of offering new technology to customers quickly. For example, it claims to have been the first company to offer WORM and Exabyte technology to HP users outside the U.S.


EURISA joins ISA's other subsidiary, ISA HK (HONG KONG) in addition to continued marketing efforts in the U.S., France, Switzerland and Germany. Plans for 1991 include the opening of a sales office in the United States and further expansion into the Asian market. —Andrea Zavod, Assistant Editor

Contact EURISA SARL, Village d'activite de Tremblay Charles de Gaulle, 58, rue Henri Farman, 93297 TREMBLAY EN FRANCE Cedex, FRANCE; 33 1 48 61 48 95.

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"Hewlett-Packard  
cleans up in  
Mini sweepstakes."  
—Computerworld

# Another pat on the back for HP 3000 owners.

You made an excellent choice! Computerworld's Buyers' Scorecard showed the clear winner is Hewlett-Packard. According to the survey: "The (HP 3000) system captured the highest rating in 13 of 15 categories..."<sup>1</sup>

It went on to say: "While HP garnered its highest ratings in the categories of availability, future growth and compatibility, users also gave it very high marks in programming capability and interfacing with other vendors'

systems... The system also topped the category of availability of third-party applications."

So you deserve a pat on the back for choosing an industry leading platform. But there's more. A study by the Sierra Group demonstrates that the HP 3000 has the lowest Cost of Ownership among the leading minicomputer companies.<sup>2</sup> And in the latest Datapro User Survey, the HP 3000 achieved the best overall record among industry leaders for customer

support satisfaction. For the eighth straight year.

For copies of these survey results and other reports, call **1-800-637-7740, Ext. 2210**. More proof that you made the best choice.



**HEWLETT  
PACKARD**

<sup>1</sup>Computerworld, 9/24/90. <sup>2</sup>The Sierra Group, 1990.  
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## Look, Listen And Learn



### HP's Multimedia Learning Library Combines Sight And Sound

If you incorporate the use of visually stimulating graphics along with sound and user interaction into your training materials, your students will learn more than they would by simply reading a book. Makes sense, right?

HP has created a learning package for HP 3000 users that combines the power of a Vectra PC with the clear audio sound of a CD-ROM player. The results are new computer-based training (CBT) courses on CD-ROM that integrate audio, text and graphics for effective self-paced training.

These courses incorporate several consistent "classroom" teaching techniques, covering subjects through lectures, interactive discussions, labs, exercises and text. HP's Multimedia Learning Library CBT with Audio Series con-

tain three CD-ROM-based courses offering a complete HP 3000 Series 900 education.

#### Curriculum Guide

The available courses include; HP 3000 Series 900 Account Management; Restoring Files, System Backup; and Startup, Shutdown and Recovery.

The Account Management course is designed for MPE XL account managers who need to learn the basics of account management. The user learns how to create and delete groups, store files to tape and retrieve files from tape, and practice setting and displaying account level user-defined commands (UDCs).

The Restoring Files, System Backup course is designed for MPE XL system managers and system operators who would benefit from understanding procedures for doing tape store and restore and system backup. Course features include practice storing and restoring one, several, or many files, storing files using wildcard characters and character sets, archiving files, and performing a full or partial system backup.

The Startup, Shutdown and Recovery course is designed for new MPE XL system managers and operators who need to learn how to do system startups and shutdowns, as well as be prepared for simple recovery tasks.

Other features include practice recovering the MPE XL system after a system failure, learning how to perform an emergency shutdown, and

how to perform an MPE XL system memory dump.

"The audio on these training products adds significant value to the learning experience," said Ann Livermore, marketing manager for HP's Application Support Division. "It's the equivalent of having a system expert looking over your shoulder while you actually work on the system."

#### Course Materials

To use the HP Multimedia Learning Library products, you'll need an HP Vectra PC (sorry, no portables) with a hard disk or an IBM PC AT with a hard disk, an EGA color monitor with 256-KB adapter card or VGA color monitor, 640 KB of RAM and 500 KB of available base memory, and MS-DOS version 3.1 or higher.

You'll also need the Toshiba TXM-3201A-PCF external CD-ROM drive kit and headphones with a plug for a 1/8-inch stereo jack, or amplified left- and right-channel speakers. The drive kit includes connecting hardware, manuals and software.

Each course is \$500. An HP 3000 Model 900 starter kit that includes all three courses is \$950. —George T. Frueh,

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CIRCLE 302 ON READER CARD



# How does the competition view performance?

## As a spectator, how else?

Bradmark knows there is no way to effectively enhance IMAGE database performance as a spectator. Performance inadequacies must be discovered and corrected before the audience notices them. This is why *DB-GENERAL* conducts from the pit, orchestrating IMAGE functions in the most efficient manner possible.

Whether your database is just a little flat or needs an entire movement rewritten, the Global Diagnostics feature available in *DB-GENERAL* keeps your IMAGE database in tune and provides you with the insight to dramatically enhance its performance. Many users have increased their IMAGE performance by as much as 30% after utilizing the Global Diagnostics for the first time.

*DB-GENERAL* knows the score, thoroughly analyzing each dataset and affording a detailed report presented in a clear and concise format. Symptoms, causes, rationale and recommendations are provided, indicating performance areas in need of immediate attention, and often uncovering problems of which you may have been unaware. Primary-to-secondary ratios, blocking factors, optimal capacities, chain retrieval inefficiencies and much more are provided to help you pinpoint exactly where your performance weaknesses lie. From the simplest sonata to the most complicated concerto, *DB-GENERAL* guides you through the often difficult task of keeping IMAGE databases at peak efficiency.

Corruption issues are handled in the same manner that any good conductor handles changes in tempo, with ease and anticipation. From the most common problems, such as broken chains and defective keys, to some uncommon ones, like label damage, missing chain heads and a variety of other database inconsistencies, *DB-GENERAL* isolates the problems and gives you the tools to correct them. And in most instances, corrections are made on the fly, reducing costly system downtime to a minimum.

From novice to seasoned database analyst, anyone can utilize the power of *DB-GENERAL* thanks to its easy-to-use master menu, which displays all the options, and its special self-help feature. If you ever have a question regarding a particular function or are unsure of the appropriate response, just enter a "?", *DB-GENERAL* does the rest. Response choices, database particulars, contextual procedures and other pertinent information is readily available, on screen. You are provided with immediate and direct assistance, as well as 24 hour a day technical support.

If you are not in complete harmony with your vendor's views on IMAGE database performance, call 1-800-275-2723 today for a free demonstration copy of *DB-GENERAL*. Once you see what *DB-GENERAL* can do for your IMAGE performance, you will make the move to both a product and vendor that truly perform.



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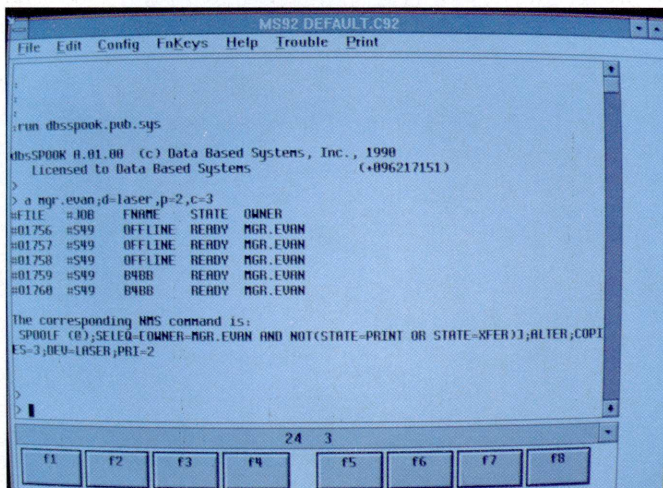
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## SPOOK's Revival



### dbSPOOK For MPE XL 2.1 Emulates The SPOOK Command Set And Output Format

You're an HP site manager and you've just decided to upgrade to MPE XL version 2.1. However, you quickly learn that this version no longer supports the SPOOK utility. Now, faced with a software conversion problem, the absence of SPOOK comes back to haunt you.

If your users depend on SPOOK or if you have incorporated SPOOK into your automated operational procedures, dbSPOOK from Data Based Systems (Flemington, NJ) for HP's new Native Mode Spooler may be your ghostbuster.

dbSPOOK is a "shell" program that accepts SPOOK commands, translates them into the appropriate native mode spooler commands, and then translates the native mode spooler output into SPOOK format.

Because dbSPOOK's output matches the format of SPOOK's, programs that call

SPOOK won't have to be modified to work with the native mode spooler. Also, dbSPOOK will read and write SPOOK tapes for portability between MPE and MPE XL systems and service bureaus.

"Many sites use SPOOK in their daily operations, in programs and MPE scripts," says William Bachenberg, president of Data Based Systems. "These are the sites we had in mind when we decided to write dbSPOOK."

#### dbSPOOK Benefits

dbSPOOK has the ability to TEXT and LIST spoolfiles that are still in the OPEN state, i.e., spoolfiles that are still being created. It can also echo the equivalent native mode spooler command of every SPOOK command issued, which makes dbSPOOK a useful training aid for the native mode spooler commands.

When using dbSPOOK, you continue to exchange SPOOK format tapes with Classic HP 3000 systems and Spectrum HP 3000 systems running MPE XL releases prior to 2.1. Manuals aren't needed because online help and existing documentation are the same as those for SPOOK.

Future product enhancements will include jobSPOOK and "wildcard" PURGE. The jobSPOOK addition will allow users with SM capabilities to STORE and RESTORE nonexecuting input spoolfiles, i.e., deferred jobs. Because PM (Privileged

Mode) is required to read input spoolfiles, jobSPOOK will be a utility program separate from dbSPOOK.

When used in its STORE mode of operation, jobSPOOK allows the user to select all jobs or a subset of jobs to be stored. The input spoolfiles will be appended and written to a single file along with any job scheduling information. The same will be true during RESTORE. Either all jobs or selected jobs will be restored and automatically restreamed.

The "wildcard" PURGE enhancement will allow a user to employ the same wildcard selections that the ALTER, APPEND, COPY, INPUT and OUTPUT commands use to select the spoolfiles to be purged. Because a "wildcard" PURGE is an extension of SPOOK's feature set, a variable will have to be set indicating to dbSPOOK that the "wildcard" PURGE feature is enabled.

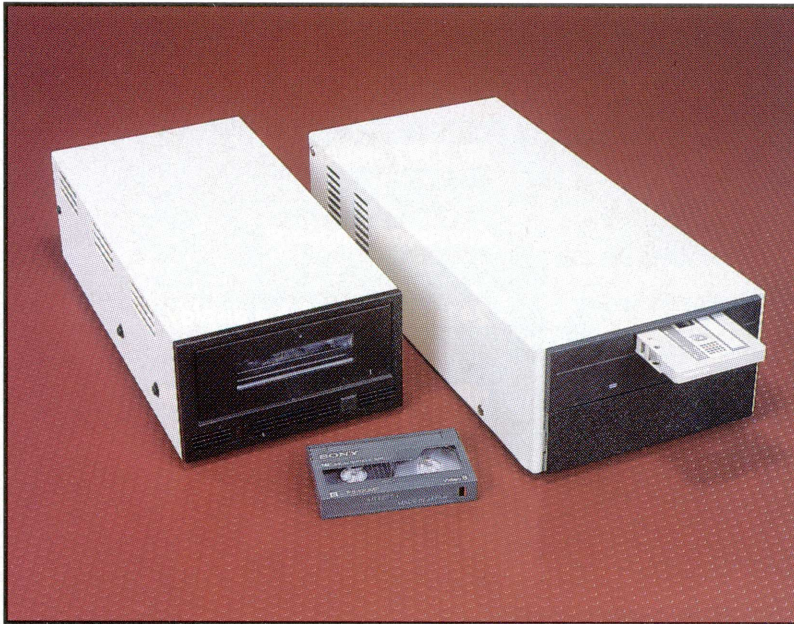
dbSPOOK is cpu priced from \$495 to \$1,250. Site licenses are available. —George T. Frueh, Technical Editor

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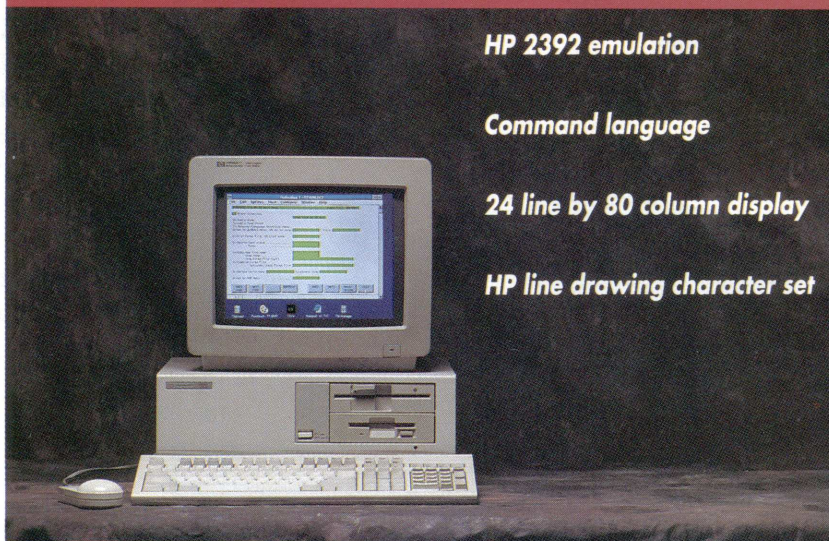
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# Reluctant Release.

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*HP 2392 emulation*

*Command language*

*24 line by 80 column display*

*HP line drawing character set*

**S**ince 1984, we at Tymlabs have been developing and shipping products based on the belief that graphical user interfaces were the wave of the future. The folks at Walker Richer & Quinn, on the other hand, have focused almost solely on the DOS world.

When it comes to Windows, WRQ doesn't share the Tymlabs vision. As recently as 1988, WRQ told you that Windows would never fly. That same year we shipped Session for Windows 2.0. Last June, just three weeks after the Microsoft release, we shipped a version of Session for the amazing new Windows 3.0.

Now, as WRQ begins to ship their first Windows product, we're shipping two, all-new versions of Session for Windows and

NewWave. Both packed with enhancements that stem from years of Windows experience.

**Head to Head.** Like Reflection, Session can emulate a 2392 terminal . . . but Session adds 700/92, 700/94, HP ANSI, and VT-100 emulation. While Reflection provides only a 24 x 80 character display, Session lets you set your window for up to 160 columns and as many lines as your monitor will allow.

Like Reflection, Session has a scripting language . . . but Session's language, TermTalk, brings a modern, English-like approach to task automation. It even lets you turn on a recorder that builds scripts for you as you work. And TermTalk was designed to interface directly with NewWave's Agent Task Language.

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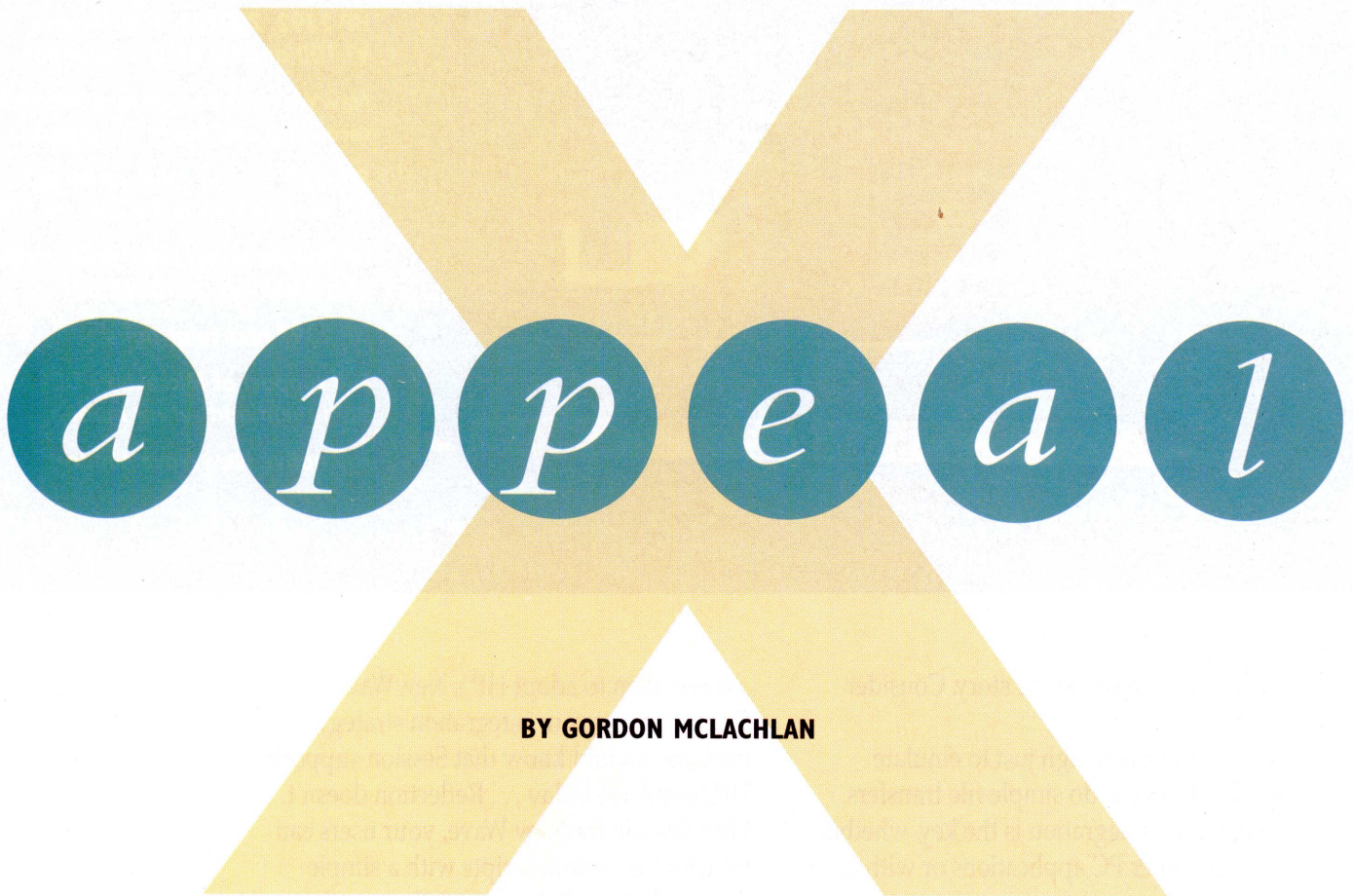
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BY GORDON MCLACHLAN

## Everything You Always Wanted To Know About X But Were Afraid To Ask

**L**ike Shirley MacLaine, graphical user interfaces (GUIs) have been around for awhile in various incarnations. The Apple Macintosh interface is probably the best known of the genre, but the concept didn't really go mainstream until Microsoft's Windows 3.0 took off last year. Now that Windows is old hat, the GUI world is buzzing about the X Window System, otherwise known as X Windows or just plain X.

At their simplest, GUIs provide standardized ways of drawing things on a screen and getting input from keyboards, mice and other pointing or input devices. In full plumage, a GUI also may provide "cut and paste" copy-



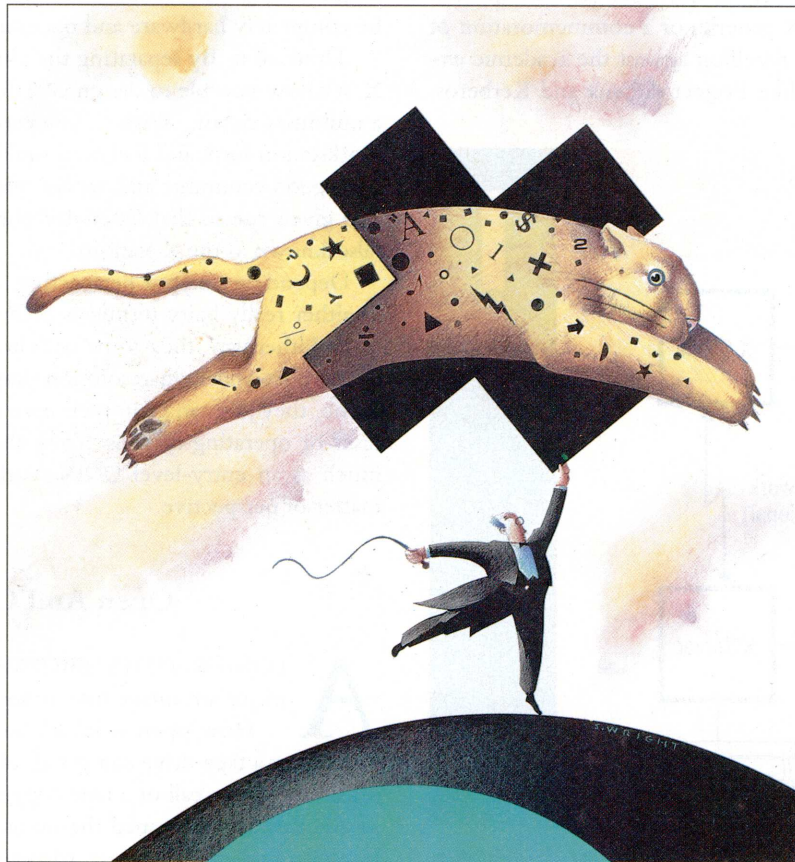
ing of data between applications and handle standard graphical output to printers and plotters, as well as the screen.

Some GUIs go completely hog-wild and try to define your entire computing universe. Windows 3.0, for instance, provides a whole framework for memory access, time-slice multiprocessing and data exchange between programs. Likewise, the Apple Macintosh and Commodore Amiga interfaces are deeply imbedded in the operating system and are more a way of life than simply interfaces.

GUIs are ideally suited for what-you-see-is-what-you-get (WYSIWYG) applications and for supporting object-oriented operating systems and application programs. Well-defined GUIs also help enforce standards on application design, giving different programs a similar look and feel.

In the DOS and OS/2 markets, Microsoft's Windows and IBM's Presentation Manager are the best-known and most widely used GUIs. Although they lack even the simple object-orientation of the Mac interface, they have served to validate the concept of the GUI for most computer users.

HP's NewWave desktop product, which bolts on to Windows, adds object-orientation and the use of program "agents" to the interface, but it hasn't been as popular as many people thought it would. Future versions of Windows are expected to include their own object-oriented tools, but for most people, object-orientation is secondary. The big attraction is eliminating the need to remember and type in commands at a command line interface (CLI).





Personally, I think it's ironic that so elegant a concept as this got stuck with the GUI appellation. I don't know who to blame for the lousy acronym, but GUI it is, and GUI it will be. It is graphical, and it is a user interface, so I suppose the term is accurate. But I still think it stinks.

UNIX also has its share of GUIness. The current hot property is the X Window System, or simply X, developed at the Massachusetts Institute of Technology (MIT). Although there are several UNIX GUIs being sold, almost all of them, including the Open Software Foundation's (OSF) Motif and Sun's Open Look, are either based on X, or are merged with it.

X got its start around 1984 as part of Project Athena, an attempt by MIT to develop an open network of graphical workstations. Despite its widespread use in high-powered graphics workstations, UNIX started its life as a text-based multiuser operating system with a rude user interface and no inherent graphics ability. As the dumb terminal isn't clearly the wave of the future, MIT (assisted by DEC and IBM) defined and developed the X Window System.

X first became available publicly around 1986. Subsequently, there have been several revisions leading to the current version, X Window Release 11 Revision 4, or X11R4, which became available in early 1990. Many commercial implementations started with X11R3, but X has really just started picking up steam.

The source of the name "X" is not clear (at least to me). Perhaps it is X as in Brand X generic, or a commemoration of Malcolm X. Maybe it was a rebellion against the academic excess that resulted in names like Project Athena and Kerberos.

Lore says it was one-upsmanship of Stanford's "W" client-server project. We won't get into Stanford's naming rationale.

## X Clients And Servers

**T**HE WHOLE POINT OF X is hardware-independence. This is achieved through the implementation of a very flexible client-server architecture. As you can see in Figure 1, the X Window System consists of a server, which manages the display, keyboard and other input devices, and a client (or application) that uses the server's devices.

At first, the terminology may seem a little confusing to those of us who think of servers as the big machines in a network and clients as the little ones. Under X, the opposite often is true. The workstation is the server and the client could be a RISC application server or a real big hummer like a Cray.

Figure 2 illustrates how clients can be run in the same box as the server, or across a network on a different machine. One very valuable feature of X is that multiple clients also may share a single server's display and input devices. It doesn't really matter where the client executes.

This is a fundamental difference between X and other GUIs. Most GUIs are closely coupled with the hardware and operating systems they run on. PM only runs on OS/2 machines and Windows is just for DOS. On the other hand, X-based GUIs can be completely hardware and operating system independent.

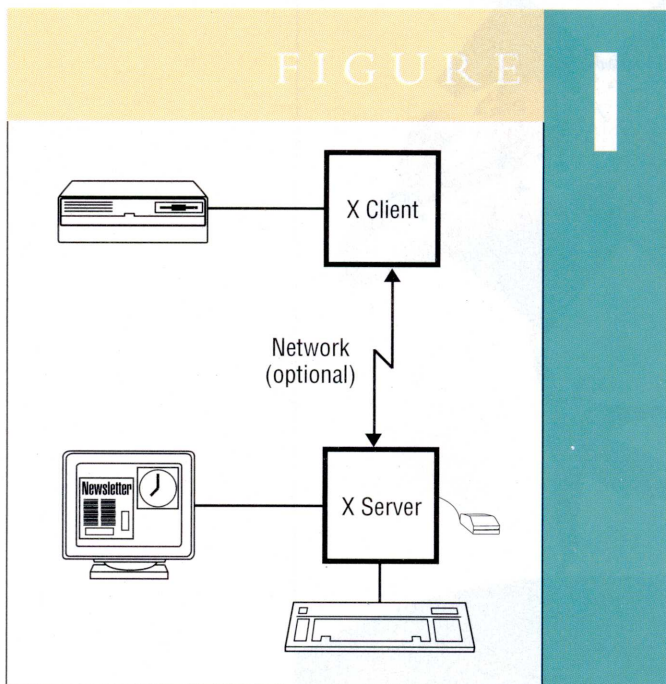
Think of it. By separating the client and server functions of X, it's now possible to design GUI-based applications to run on a multiuser system. With X, you can give your users a personal workstation look and feel on a multiuser system. That can pay back good economic and system management dividends. It has also given rise to that latter-day phenomenon, the X terminal (also known as the X station).

Depending on your perspective, you can think of X stations as either really hairy terminals or hopelessly crippled workstations. Either way, they come with healthy processors, megabytes of memory and high-resolution graphics displays. They aren't dumb, they just can't run their own clients and they don't have disks or operating systems. They also cost about 60 percent as much as an entry-level UNIX workstation. Like I said, it's a matter of perspective.

## Open And Cheap

**A** LONG WITH ITS HARDWARE-independence, X has a major advantage over other GUIs: It's an open system.

How open is it? It's so open that anyone with a modem or a tape drive can get all of the X source code for the price of a phone call or a tape copying fee from MIT. Needless to say, this hasn't escaped the notice of the software mongers. Implementations of X are showing up on Macs, PCs and

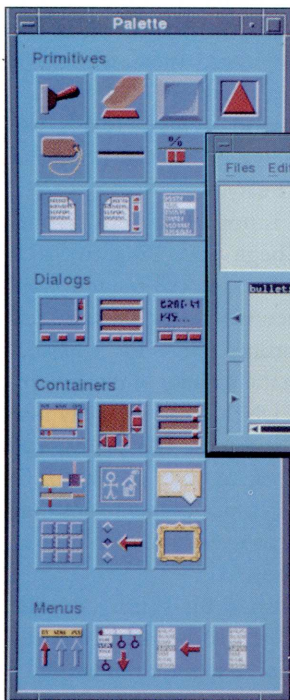


*X Client-Server Architecture.*



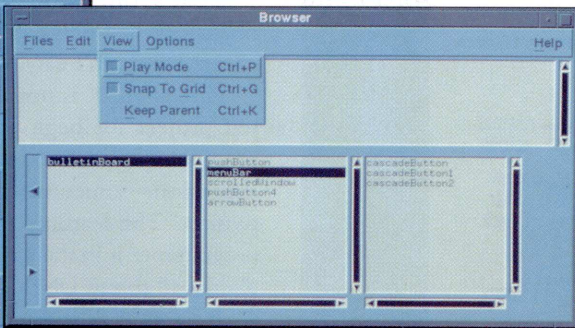
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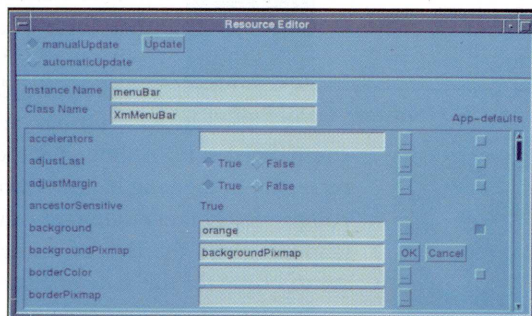


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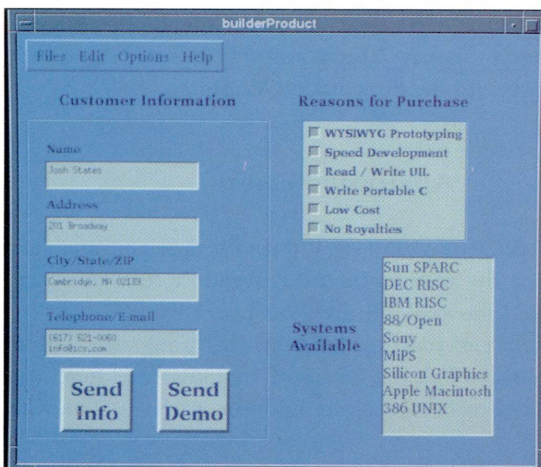
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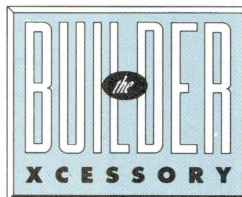
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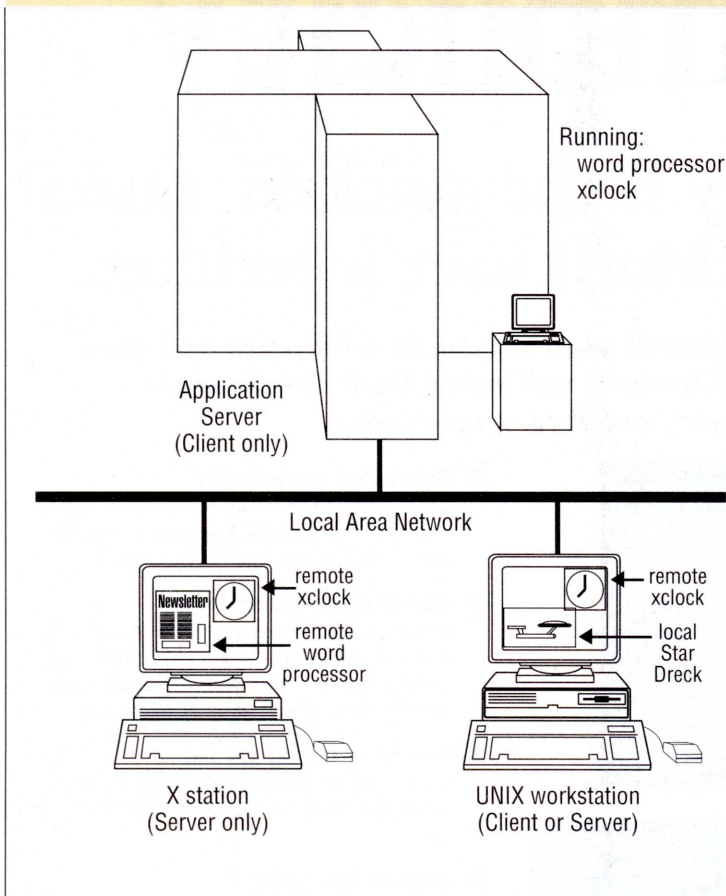
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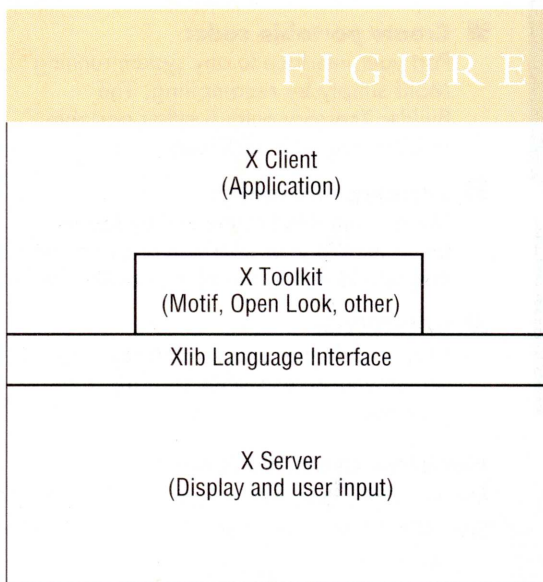
FIGURE

2

**X Hardware Combinations.**

FIGURE

3

**X Software Layers.**

Amigas, as well as UNIX systems. Most of these are still server implementations for use with UNIX hosts, but Quarterdeck has added X to its Desqview GUI's repertoire, and it's only a matter of time before some enterprising souls catch on to the multiuser potential of X under DOS or other proprietary operating systems.

Although I referred to X as a UNIX GUI, that is more a matter of circumstance than design. X is designed as a C application programming interface, so it's theoretically portable to everything, including your kid's Nintendo. It just so happens that X, like many other good hacks, started off in the UNIX world and stayed there while PCs devoured America's desktops.

That's the good news. Here's the obligatory bad news: X may be open and cheap, but it ain't easy.

First of all, X is not a good do-it-yourself project for beginners. Like any GUI programming, X hacking can require mind expansion—sometimes to the point of explosion. The learning curve for a new X programmer is in the vicinity of six months. X, like all things UNIX, is also heavily into C. If COBOL is still your cup of tea, you might want to stick to your dumb terminals for a while. No one wants to imagine what the Identification Section of a COBOL X client would look like.

Things are also a bit skinny on the commercial side. Although it's destined to be phenomenally successful in the long haul, commercial X applications are still a comparatively rare commodity. Both the complexity of X programming and the lack of a single standard window manager are to blame for this state of affairs.

Programming experience will take care of itself with time. Strong standards are also coming of age, so it looks like availability will be a short-term issue, just like it is with other popular GUIs. Let's put it this way: You're probably in better shape with X than you are with the Presentation Manager.

### Anatomy Lesson

**T**O UNDERSTAND THE WINDOW manager issue, let's look at the anatomy of the X Window code structure. Figure 3 shows all the components.

The X client gets access to the X server through the Xlib C language interface. This is a library of very low-level functions that can be used to communicate with the X server. The Xlib



is a very general and flexible set of routines that let you do just about anything you want to do in a GUI environment.

The trouble is that Xlib is too low-level to be used easily. One programming example I saw used more than 70 lines of C code just to display "Hello World". For this reason, it's desirable to use a higher-level set of APIs that are easier to work with. That's where X toolkits come in.

Perhaps even more important in terms of software design, toolkits can provide a consistent user interface. Xlib doesn't. X was designed only to provide a mechanism to handle graphics display and user input. It was not meant to tell the programmer how a program ought to look and feel.

This lack of policy enforcement certainly makes the system very flexible, but a GUI isn't all just graphics and input. The user has to enter into the equation somewhere along the line. Just because software has a graphical interface doesn't mean it's useful, and GUI doesn't always stand for Good User Interface. An X interface can be as good or bad as anything else out there.

The higher the level of a toolkit is, the more policy it enforces, intentionally or not. By reducing the complexity of the API, the toolkit also imposes its own view of the GUI world, and its unique look and feel.

The big battle on the UNIX front is between Sun's Open Look toolkit and the OSF's Motif. Although many users favor the Open Look interface, Motif has a lot of backing from vendors and customers, both because of its non-proprietary nature and its resemblance (for good or ill) to IBM's Presentation Manager.

Sticking to its credo that the only standards are products that have shipped in quantity, Sun has steadfastly refused to admit that Motif has any validity as either a standard or a product, and has refused to implement it. They also insist that X terminals are an aberration, genetically inferior to real workstations. There's that matter of perspective again.

In an interesting turn of events, Hewlett-Packard has developed Motif for Sun workstations. I guess HP's serious about this standards stuff after all.

The net effect is that you find X applications in one of three categories: generic X, Open Look and Motif. Whether you can get the software you want with the interface you like is completely up to your software vendor. Over the long-haul, Motif is likely to predominate, but there are a whole bunch of Suns out there and generic X with a custom interface is still an escape-hatch for vendors that won't make a commitment to one

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toolkit or the other. I always love the bloodshed when new standards pop up.

### Terminal Temptation

**L**IKE MOST ANYTHING HAVING to do with UNIX, X also can be too much of a good thing. Capability doesn't directly lead to useful implementations. With visions of cheap X terminals in your head, you might be tempted to forget all about workstations and forge ahead with multiuser systems. Is this a good idea?

One major advantage of X terminals in a multiuser environment is simplified logistics. It is always easier to maintain a multiuser system than it is to administer the same number of users in a workstation environment. Depending on the scale of your operation and its configuration, multiuser software may be cheaper for your application, but don't let your analysis stop there. You also need to consider performance.

Like any client-server application, the design of X applications is complicated by the network factor. On a single workstation GUI like Windows, all of the interaction between the program, the display and the user goes on inside the box on

With visions of cheap X terminals in your head, you might be tempted to forget all about workstations and forge ahead with multiuser systems.

your desk. On the other hand, if you're using remote X clients, all screen updates, keystrokes and mouse twiddling has to traverse the network before it can be processed.

That means X performance depends on all sorts of things. Your network capacity, the speed of the X stations, the number of users and the type of applications you are running are all critical concerns. Mouse and keyboard response on multiuser systems is not going to be as crisp as what you're used to on

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your 33 MHz MegaClone DOSmonster, but you can't expect it to be. If the economics work in your favor, X terminals might not be a bad bet.

Compute- and graphics-intensive programs like CAE are punishing applications for a remote-client X terminal network. As processor-bound as these applications are, it isn't hard to see how limiting screen updates to network speeds could be a handicap. Worse yet, multiple X sessions like this on a single network could bring the whole thing to its knees pretty quickly.

Less punishing are "normal" office automation, productivity and other multiuser applications that don't eat so much bandwidth with screen updates. Unless you just plain overload the network, these types of clients should perform adequately.

It is possible to create subnetworks with bridges or routers to isolate heavy X traffic, but it might make as much sense to cough up some bucks for some extra workstations and forget about remote clients and X stations. In this situation, Sun has the right idea.

Fortunately, nothing is forcing you to run remote clients. X is also perfectly suitable for single-workstation applications, and it is a real boon to UNIX in this regard. Traditionally, character-based UNIX has not been a very good platform for the types of applications we have come to associate with the

personal computer. With X, however, more vendors are creating UNIX software that looks (and feels) like the real thing.

## Do You Need X?

**I**N THE FINAL ANALYSIS, your choice of whether to have X depends on your UNIX affinity, economics, and a consideration of the performance you need. If that sounds like too much trouble, there are always the old standbys: Blind bigotry or the wild guess.

HP, to its credit, has simplified things by offering upgrade credits if you want to trade in your HP X station for a real workstation. That's an incentive to them to give careful advice about using X terminals, and takes you off the hook.

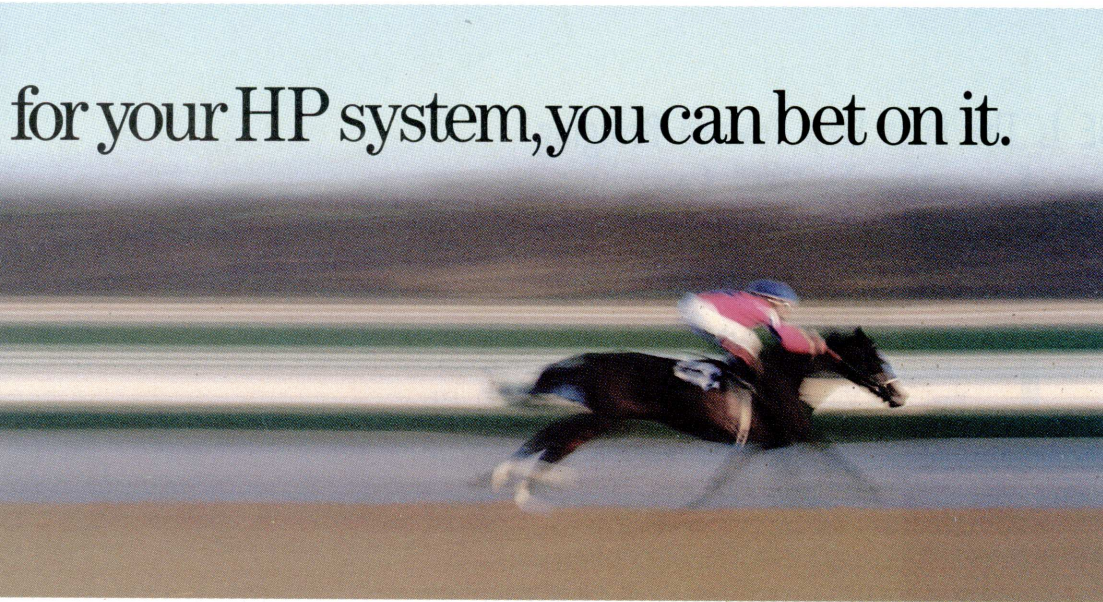
I, of course, am skeptical. It's a nice safety net, but I wonder if we aren't diminished somewhat by the elimination of risk from our lives. What fun is Russian roulette with an empty gun? —*Gordon McLachlan is a consultant with National Tech Team in Dearborn, MI.*

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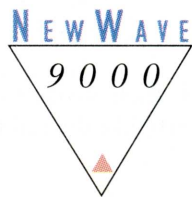
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## THE POINT OF



## HP VUE Is The First Step Toward Bringing NewWave Computing To UNIX Environments

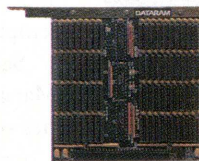
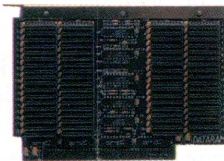
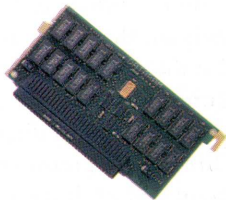
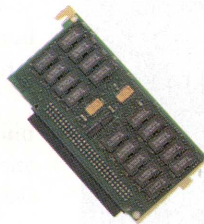
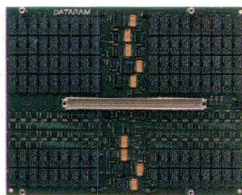
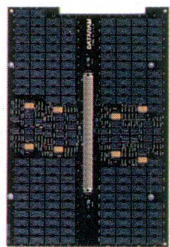
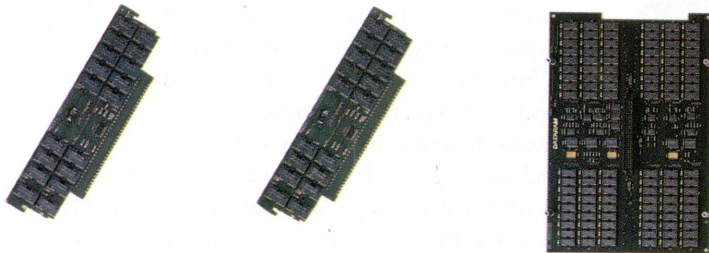
**T**he days of struggling through an unfriendly UNIX user interface are gone—thanks to Hewlett-Packard's Visual User Environment (HP VUE). HP VUE is a simple graphical user interface that makes a UNIX-based system easy to use. The beauty of HP VUE is the way it looks on your computer screen, and *Figure 1* is a screen shot of a typical HP VUE working session. There are several windows open and several functions taking place.

Although many UNIX users always will enjoy using such "challenging" commands as **awk** and **grep**, the HP VUE user will be performing much more pleasant functions, such as "point and click" and "drag and drop." As John Wunder, designer and system administrator at Hamilton Standard (Division of United Technologies Corp., Windsor Locks, CT) puts it, "HP VUE

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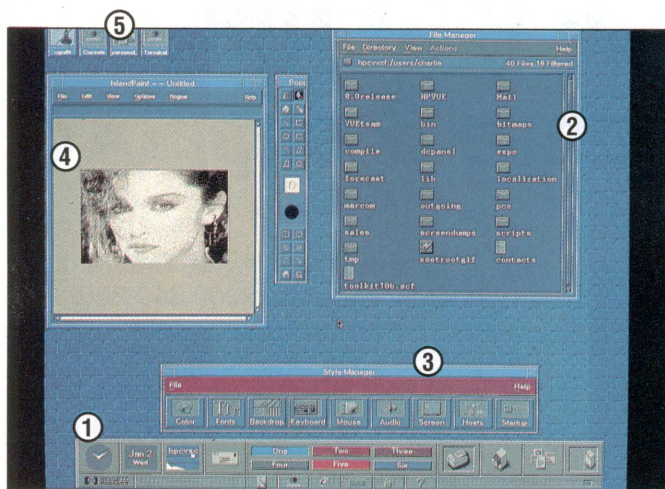


Figure 1: A typical HP VUE working session.

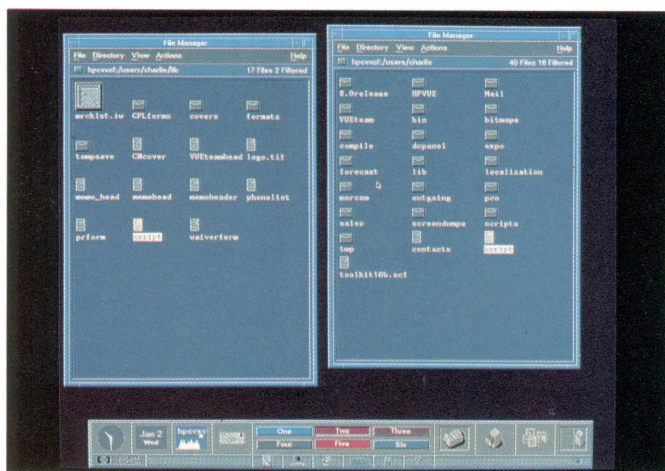


Figure 2: The File Manager provides a graphical means of navigating through your local UNIX file system and remote systems.

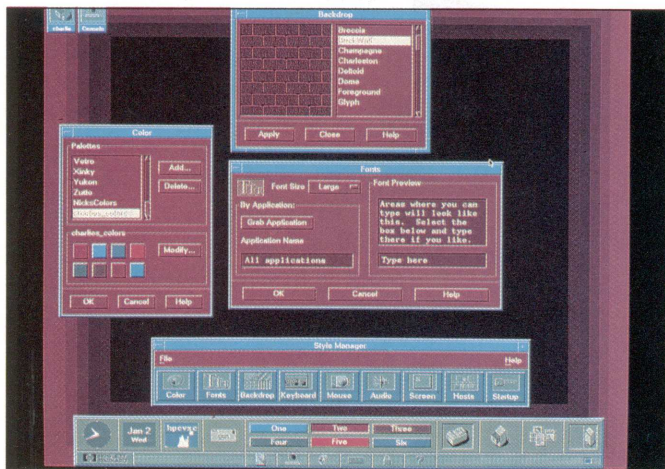


Figure 3: You can customize almost every aspect of your environment using the Style Manager.

gives me easy access to all the UNIX commands I used to fight with in my older, less friendly user interface." It's only fair to warn you, though: After a few minutes of using HP VUE, you and your mouse could be inseparable.

Item No.1 in Figure 1 points to VUE's Workspace Manager. A workspace is an organization of the user environment that's comprised of windows and icons. You can have multiple workspaces for different workstation tasks, such as CAD, office automation, program development, etc.

Workspace Manager indicators include:

- Clock — Displays the current time.
- Date — Displays the current date.
- Load — Graph of the level of CPU utilization of the system.

Workspace Manager services include the Mail Service—shown as a letter push button—provides an environment for easy use of electronic mail. Using the form provided by HP VUE, you can send mail to anyone on your network. You invoke the mail facility by placing the pointer over the letter push button using your mouse and clicking on the icon — this is referred to as "point and click."

You can use six Workspace Managers (push buttons labeled one through six) to switch from your existing workspace to another. You may choose to have one set-up for your CAD work and a another set-up for your spreadsheet work, etc.

When a file icon is dropped on top of the LaserJet push button, the system sends the file to be printed on the system printer. Selecting an icon, moving it to another spot, and dropping it is referred to as "drag and drop." When you drag and drop a file icon on top of the trashcan, the file is stored temporarily in the trashcan and deleted at the end of the session.

Selecting the file cabinet push button invokes the File Manager that provides an iconic view of the files and directories on the system. The Application Directory, represented by a push button of several sheets is a point and click means of invoking often used applications. An alternative to using the Application Directory is to update the menu to include the names of the applications you have running.

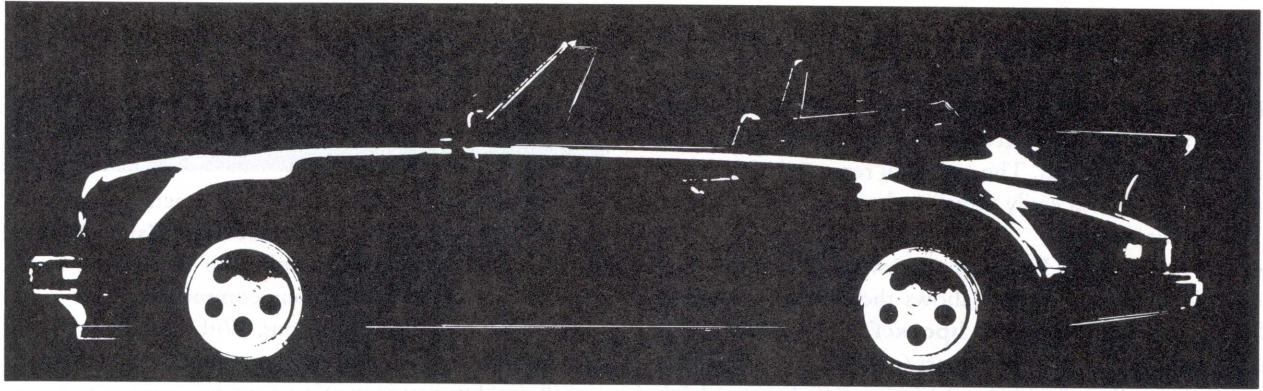
In case you get homesick for HP-UX, selecting the bottom row terminal push button, or the Terminal window, opens a window to UNIX so you can type all the **grep** and **awk** commands you want. The bottom row paint container opens the "Style Manager" window. You can modify any aspect of your environment with the Style Manager.

The Rename Workspace (bottom row, middle push button) allows you to name and save a workspace you have crafted so that you can later recall it. You can lock your screen environment and assign it a password by selecting the bottom row Lock push button. Finally, selecting the bottom row "?" Help Manager opens an online Help window.

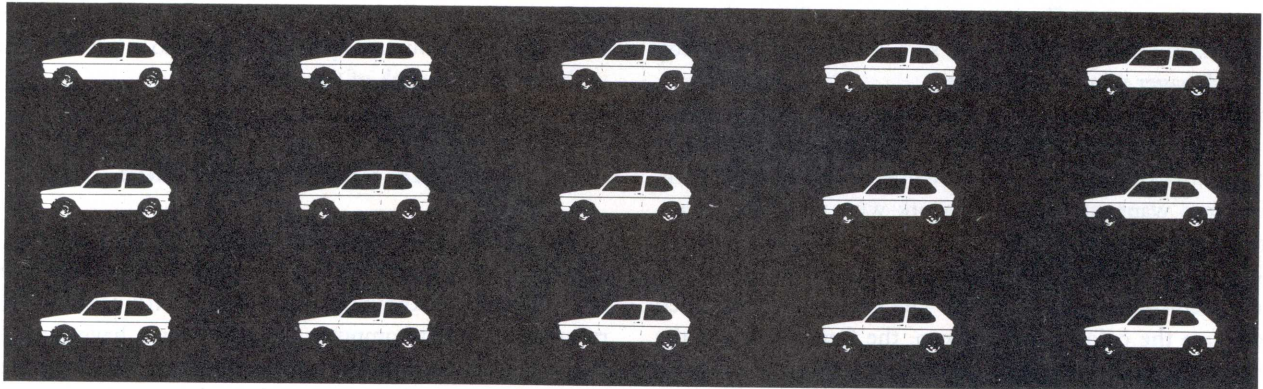
Item No. 2 in Figure 1 is the File Manager. The File Manager provides a graphical means of navigating through your local UNIX file system and remote systems. In addition, files and directories can be moved, copied, deleted and added. These



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functions are performed by selecting a file icon ("point and click") and then selecting the desired function from the menu. Graphical manipulation of files allows you to perform specific UNIX commands without needing to know the details of the format of these commands. The graphical representation of the file system helps you to easily visualize the hierarchic structure of the UNIX file system.

Figure 2 shows two File Manager windows open. The leftmost File Manager window shows the directory `/users/charlie/lib` open on the system `hpcvxcf`. The rightmost File Manager window has open the `/users/charlie` directory of the system `hpcvxcf`. The highlighted file "script" has just been copied from the rightmost File Manager to the leftmost File Manager. The File Manager uses indicators on the icons to help you quickly identify the type of file, or directory present. For instance, an icon with a lightning bolt through it is an executable such as a shell script or C program; an icon showing lines of text on it is an ASCII file; icons with a `-` are directories; and applications can have custom icons, such as the icon on the top left File Manager window of Figure 2.

Item No. 3 in Figure 1 is the Style Manager. Almost every aspect of your environment can be customized using this facility. It's an opportunity for you to make your computer look the way you want rather than to work with what the manufacturer thinks is good for you.

Figure 3 shows the Style Manager window and the multitude of parameters you can modify. The parameters most often modified are the colors on the screen, the fonts used, and the pattern of the backdrop. The three Style Manager windows open in Figure 3 give you complete control over these parameters. If, for instance, you were to select the red brick backdrop shown in the "Backdrop" window, the red brick background would be applied to your screen. It's amazing how much more appealing using your computer can be when you have complete freedom over the aesthetic appearance of your environment.

Item No. 4 in Figure 1 is Applications. Because HP VUE is based entirely on standards most applications will run along with HP VUE. In addition, application use can be enhanced by using many HP VUE features such as copying application file icons from one File Manager window to another, customizing your menu to quickly invoke applications, and quickly making an application window into an icon to better organize your screen.

HP VUE gives you complete control over your Workspace Menu. You can easily customize the menu to include your most commonly used applications. This way you can quickly see which applications are available to you and invoke an application by selecting it from the menu.

Every user has a file called `vuewmrc`. To add any command to the menu, you would add the text as you want it to appear on the menu, then the name of the program or command you want to execute. For instance, if you're running an application called "IslandPaint" and wish to invoke this appli-

cation from the Workspace menu, you would include this entry in `vuewmrc`:

```
"IslandPaint"
f.exec "/usr/loffice/bin/IslandPaint"
```

By selecting "IslandPaint" from the menu, you would then execute the command `/usr/loffice/bin/IslandPaint`. From this point on, you could invoke the IslandPaint application without having to type in a long command.

Item No. 5 in Figure 1 is Icons. With one click of the mouse you can take any window on your screen and convert this into a small, unobtrusive icon. You then can convert that icon back into its original form with one click of the mouse. Unlimited window manipulation is also possible, so you can size and shape your windows to suit your needs.

Item No. 5 shows four icons in the upper left corner. These icons represent some processes taking place that would take up substantially more space on the screen if they weren't in the form of icons. You can open any icon into a full size window with a point and click of the icon.

## HP VUE Organization

A MAJOR BENEFIT OF HP VUE is that you can use your UNIX system with this powerful yet pleasant interface without knowing much about UNIX or the system it's running on. Most computer users, however, have that natural curiosity to know how an application fits in with the system.

You interact with the system through HP VUE. You can take advantage of all the benefits HP VUE provides, such as realizing the power of UNIX without needing to understand the format of commands. On the other hand, you can open a terminal window and type all the `grep` and `awk` commands you want.

Most UNIX systems are based on standards, so the next level down is the X Window System, the industry standard windowing system. Below X Windows is the standard UNIX-based operating system; on HP Apollo workstations you've got either Domain/OS or HP-UX at this level right now, with OSF/1 on the way. At the lowest level of the system configuration is your nuts and bolts—your HP Apollo hardware.

HP VUE is the first step toward bringing NewWave Computing to the UNIX system environment. In subsequent releases of HP VUE, the features described in this article will be combined with additional features, such as NewWave Agents and NewWave Object Management, to provide full NewWave Computing capability on a UNIX system. Future releases of HP VUE will provide direct access to several platforms, including those from other vendors. —Marty Poniatowski is a computer-aided engineering technical consultant for Hewlett-Packard, Darien, CT.

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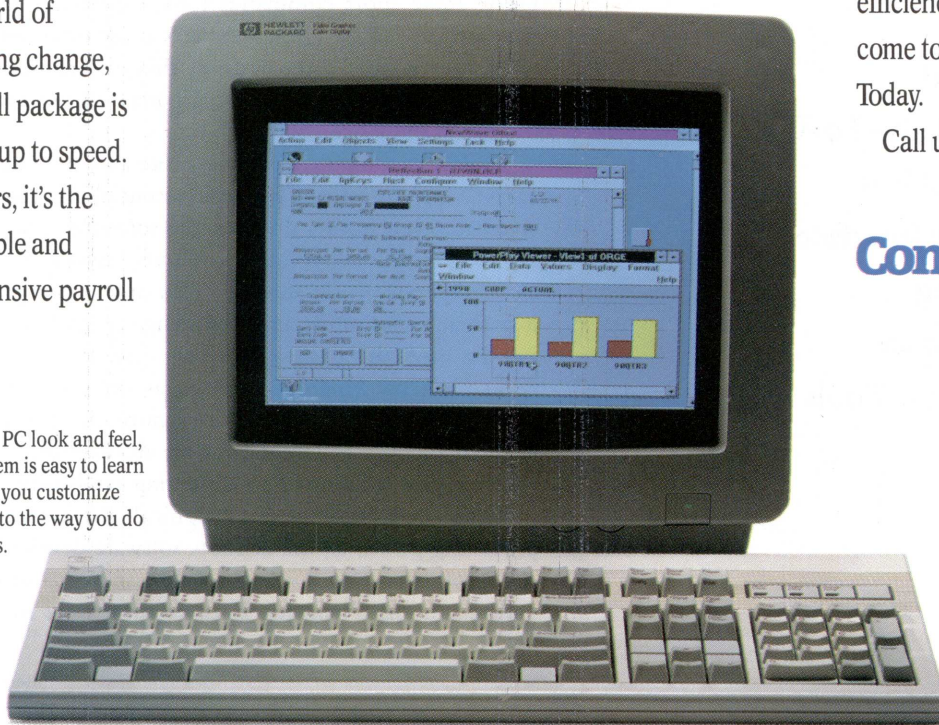
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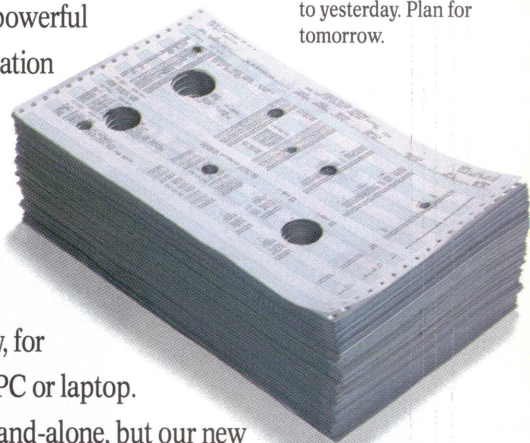
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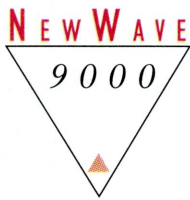
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# a PROGRAMMER'S

**BY JIM BYERS**

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Computer systems sure have come a long way since the days of the 110 baud Teletype. That now ancient device sent about 11 characters to the screen per second. The average line took about seven seconds to appear, and an average screen full of information took over two minutes. Typically, many users shared a single, rather expensive computer, and every character was precious. This was the environment that most of today's popular operating systems were born into.

The primary requirement of early user interfaces was to interact with the computer via brief, economical commands. Using these short commands took experience and training. Because most of the computer users at the time were engineers or highly trained MIS people, this environment with its cryptic commands and unnatural syntax was accepted without too much resistance.

Today, as computers perform more and more business tasks, easy-to-use interfaces become essential. Anyone who has watched, even from a distance, the software industry over the last 10 years will tell you that intuitive, easy-to-use applications are a requirement for survival. This urgent and growing need is both an opportunity and a challenge to application developers. To meet this challenge, a new class of software development tools has emerged, known as Interface Design Tools (IDTs). IDTs allow developers to ignore much of the underlying technology—including hardware architectures and operating systems—and concentrate on delivering easy-to-use applications.

With the advent of fast graphical displays and increased processing power on the desktop, software developers have the ability to move from command line input to mouse-driven, "point and click" control. Because users want to share infor-



# T OOLBOX

mation and communicate over a network, many other new demands have surfaced, too. In a networked environment, it's often useful to have several applications running at the same time, each displaying through its own window. It's best that these applications run on a remote CPU allowing the loads to be balanced across the available CPUs on the network.

Software tools that can build a windows-based user environment have developed rapidly over the past several years. The first major step occurred with the standardization and industry acceptance of the X Window System, which provided a common set of graphics and window manipulation commands that enabled developers to provide programs that are easily portable across various vendors' platforms. X11 eliminated the problem of incompatible window systems but provides only a low level of functionality. Despite the fact that X11 provides functions to draw lines, manipulate windows and process input, a considerable amount of effort is required to produce a menu. To allow more rapid user interface development, component pieces, such as menus, must be standardized and readily available.

In response to this need, OSF defined the Motif toolkit. Under contract with OSF, HP combined components of Digital's DECWindows with the 3-D look and Microsoft Windows feel of the HP CXI widgets set. This resulted in a comprehensive set of interface pieces, such as menus, push buttons and dialog boxes. By combining these pieces, the software developer can create an effective graphical user interface without having to create each component.

Because the Motif toolkit provides Presentation Manager-like behavior, users who know Microsoft Windows will be familiar with how Motif applications work. One advantage of

this is that applications running on both PC and UNIX platforms don't require two sets of documentation or training courses. If the user knows the PC version of the product, he has already mastered the Motif version that runs on UNIX.

## What's A Developer To Do?

**A**LTHOUGH USERS WANT A GUI, interface design presents enormous challenges to the application developer. First, X11 and Motif are very rich in complexity. This means that although users can move from one application or platform to another with little difficulty, the learning curve for developers is very long. In order to build an effective application with an intuitive user interface, the programmer must amass a great deal of detailed information. In a typical GUI-based program, 50 to 80 percent of the application code is used in the interface alone. For the programmer, the distance from a blank screen to a fully functioning GUI can be very large indeed (see *Table 1*).

At this point, X11 and Motif are only a few years old. Although universities and training courses are beginning to produce X11 and Motif programmers, there are relatively few fluent user interface programmers in the job market. Consequently, today's software development firms face a difficult task when searching for the right people to design what may be the most important piece of their application code. What this boils down to, in many cases, is a substandard implementation of the program's user interface. In today's market, that can mean the difference between phenomenal success and market indifference.

Examples of user interfaces that aren't easily understood aren't



TABLE

	Standard	Technology	Trained Programmers	Typical Code %
Application	NA	Application Specific	1	25%
UI Toolkit	OSF/Motif	35 UI Components Xt Intrinsics	1	50%
Window System	X	Xlib ICCCM Graphics	3	15%
O.S.	UNIX	C System Calls	10	10%

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hard to find. Many people don't know how to program a VCR, decipher their clock radio controls, or use all the features on a telephone. In his book, *The Psychology of Everyday Things*, Donald Norman offers some insight into reasons that well-intentioned user interface designs fail. He quotes a designer who describes his experiences developing new products. "It usually takes five or six attempts to get a product right. This may be acceptable in an established product, but consider what it means in a new one. If the product is truly revolutionary, it's unlikely that anyone will quite know how to design it right the first time; it will take several tries. But if a product is introduced into the market and fails, well that's it."

For this reason, it's important for user interfaces to go through several development cycles—including prototyping and user testing—before they're released as products. But just learning the basics of coding the interface components and debugging errors in the program layout can consume many months of crucial development time. Often this means that interface development—several iterations are necessary—and user testing get shortchanged. The result can be a failed, misunderstood or simply unusable product.

Software is developed by technical people, but increasingly, used by non-technical people. It's critical that user interface designs go through a series of prototype and user test cycles. This wasn't terribly difficult when creating command-line-based programs because the sequence of commands wasn't hard to mock up for test purposes. With the advent of graphical user interfaces, prototyping and testing an interface became a more complicated process. If the implementation time to create a GUI is lengthy, prototyping various approaches can be impractical. Decisions about whether buttons or menus would be best in an interface, have to be made by the programmer in the absence of real user information.

Recently, interface design tools for the X Windows and

Motif environments have become available. They dramatically reduce development time because code is generated automatically, shielding the developer from the complexity of the underlying toolkit. The focus shifts from the details of using the toolkit to the actual design of the interface. Novices can be productive without becoming X Windows experts. Experts can focus on the interface, not on training novices.

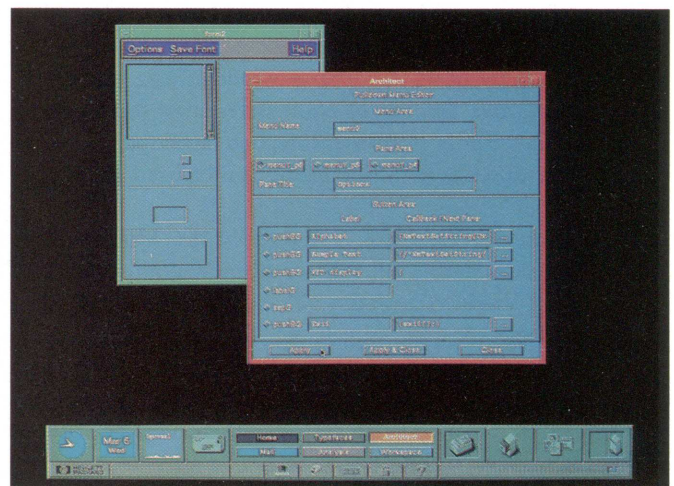
Because modifications are easy to make, a project team can test many designs to find the most usable. Because modifications can be made by looking at the actual interface, not just source code, applications are easier and less costly to maintain.

## Developer's Guide

**A**N INTERFACE DESIGN TOOL aids the interface developer throughout all stages of development. As an example, HP Interface Architect can develop a simple application that allows a user to request one of the Intellifont scalable typefaces and display the resulting sample text in a window.

Using Architect, the developer can begin laying out the interface without concern for the underlying code needed. Instead, the developer focuses on the interface itself. Using a mouse, the programmer selects components from a menu and places them on the screen. Special editors can be invoked, such as the menu editor (which may have very complex substructures), further insulating the programmer from the complexity of the environment. Components then can be resized, moved and modified. The programmer can alter, add or delete components until he achieves the desired effect.

Now the developer can shift his focus to the specifics of each component. Placing the cursor over a component and clicking a mouse button causes a property sheet for that component to



*Special editors, such as the menu editor, can be invoked to insulate the programmer from the complexity of the environment.*



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appear. This allows the developer to interactively change any of the component's properties. For example, suppose you were trying to build an application that required a text field in which the user could specify the desired font size. The developer can bring up the property sheet for that component and change it from the default behavior to a simpler single line behavior by clicking on the appropriate button and changing `multi_line_edit` to `single_line_edit`.

Through all phases of development, the programmer can see the interface as it will appear to the user. The interface can be laid out without having to hand code any of the components, saving literally months of effort. Because others can review the design along the way, it's also a more appealing interface.

Most IDTs allow the generation of C code for the interface, typically generating code that calls the Motif library. Most tools also allow limited interface testing, permitting the developer to see if the components function properly. For example, the developer can click on a push button to see if its color changes properly. Using Architect, the programmer also can edit the code output file, which describes the layout of the interface, and add in the actual application code. (This involves entering the functions that each Motif component is to perform.)

In our example, when the user pushes the apply button, the application has to perform a complex series of tasks. To apply the font and style the user selects, the application must read the selected typeface from the scrolled list, check the status of the bold and italic buttons, obtain the point size value from the text field component, and place the resulting font name in the font list property of the display window text widget. It's a lot to go through for a font. Note that the application must read from four components—the scrolled list, bold button, italic button and text field—and modify the state of a fifth—the display font.

Many layout tools don't provide much assistance for this kind of operation. The edit, compile, text cycle is the programmer's only option. Often this isn't sufficient as the interactions between components can become intricate, involving pop-up menus, dialog boxes and many possible behavior paths. Simplifying the development of the application requires interactive testing of its behavior, as well as its appearance. Just as it's useful to see the design as the interface is being built, it's also important to test the application's behavior as it's being developed.

### Behavior Modification

**I** NTERFACE ARCHITECT ALLOWS the developer to enter the application code when developing the interface. Because there's an integrated C interpreter, the behavior can be tested at anytime. Previously, the developer created the logic for the behavior, but could not test it without running the application. For our sample application, if the developer wanted to add in the behavior for the apply button, he would simply

move the mouse to the button and click to bring up the property sheet. When the behavior button is clicked, Architect displays all possible callbacks.

In Motif jargon, a callback is the behavior needed when a certain state occurs. In this case, the developer wants to indicate the behavior that should occur when the button is pushed. You could type in the behavior, or call a function created earlier, but in this case, you can cut out the routine from a terminal window and paste it into the editor window from the callback. You press the apply button and let the C interpreter test scan the behavior code you entered.

If there's a syntax error, you will know immediately, and can correct it. If there are no syntax errors, you can click on Architect's test button and test the full behavior of the application. In test mode, the developer can select a typeface, click the bold button, and push the apply button. If everything is in order, the callback function should execute and the font in the display window should change immediately. If the behavior isn't right, you can edit the callback in the editor window and retest, all without exiting Architect.

When development is finished, Architect writes out the C code containing all the application code, including the appearance and behavior of the interface. No further editing is required at this point. You simply compile the code to create the finished application. Although Interface Architect presently runs only on the HP 9000, you can compile the resulting interface code on any platform that provides Motif libraries.

If you need to modify the application, you can pull up the description of the interface and make the desired changes using Architect. The person maintaining the application can go directly to the problem component and modify both its appearance and behavior. This level of functionality eliminates the maintenance programmer's age-old problem: deciphering someone else's code.

### A New Era

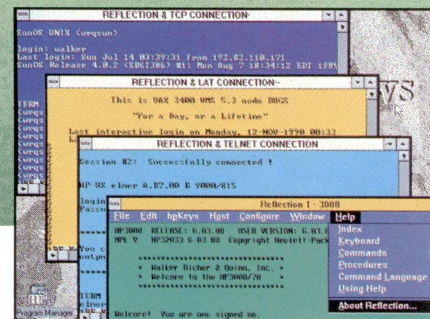
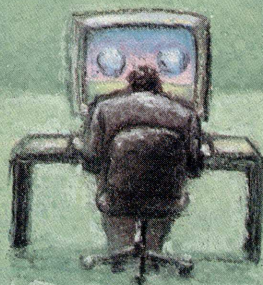
**I** NTERFACE BUILDERS ALLOW application developers to avoid much of the complexities of the bare-bones interface toolkits. This allows you to focus more time on the development and user testing of the actual interface. IDTs, such as HP Interface Architect, allow you to create and test the complete appearance and behavior of the application, shortening the design, test, debug cycle. Without a doubt, these tools can produce more and better Motif applications. By reducing the need for training and decreasing development time, they could also help software developers take advantage of new opportunities.—*Jim Byers is a product manager at the Interface Technology Operation Division at Hewlett-Packard, Corvallis, OR.*

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CIRCLE 222 ON READER CARD



# Optical .....Opulence

BY RON LEVINE

Rich With  
Options, Optical  
Technology  
Is Ideal  
For Today's  
Storage-Intensive  
Applications

**C**onsider these facts: Optical storage devices offer extremely high density recording capacities. They are stable and rugged. And they provide the ability to record audio, video, text and other data in an integrated format. All told, optical storage devices are transforming mass storage techniques and moving computer automation into new and exciting applications.

Now consider another fact: Today's GUI-based, graphics-intensive applications incorporate many different types of information, including audio, video and text. They also take up incredible amounts of storage space. The limits of disk storage must change radically — and quickly — in order to keep abreast of these software developments.

Finally, consider what computing has promised its commercial users: A transparent information utility that puts data in the hands of people who need it when they need it. Yet, despite many years and billions of dollars spent in installing office automation systems, 95 percent of all stored information is still maintained on that ancient Egyptian invention, paper. Needless to say, computing has made little progress toward



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**O**ptical media are virtually indestructible. They aren't damaged by shipping, mailing, X-ray machines or other scanning devices, mishandling or even exposure to environmental conditions.



the fabled "paperless office," let alone the information utility. In fact, modern business continues to add to its paper jungle at the rate of two trillion documents per year.

Will advancements in graphical applications and multimedia computing ever catch up with the proliferation of paper? The answer is probably yes, and in more ways than one. Optical storage technology's new mega-capacities are the reason.

One five-inch optical disk can store the same amount of data as 1,000 5 1/4 inch floppy disks; one 12-inch optical disk can store a quantity of data equal to seven eight-inch disks (over four standard file cabinets full of letter-sized pages of text). Imagine the possibilities of having all of this data online. One 12-inch reel of optical tape holds a sum of data equal to 5,000 standard-sized reels of magnetic tape — that's equivalent to approximately 1.5 billion typed pages of standard-sized (8 1/2-inch by 11-inch) business documents. All the data is in one-place, easy-to-access, easy-to-store and easy-to-update.

Optical media are ideal for backup and archival purposes. Whereas magnetic tape (the most commonly used medium for this endeavor) has a life expectancy of three to five years, optical media commonly have a shelf-life of 15 to 35 years. Some media manufacturers go so far as to promise up to 100 years of usefulness. In addition, optical media aren't damaged by shipping, mailing, X-ray machines or other scanning devices, mishandling or even exposure to environmental conditions. In fact, optical storage is virtually indestructible.

Another advantage of optical storage is its superior data handling capability. Text, audio, video and images may be stored and retrieved together for display or print. By using an

input device (e.g., a scanner), an office automation image processing system can capture any printed document, including those with illustrations, photos, signatures, and handwritten notes, then store that captured document on optical disk for later retrieval. And, by using WORM (Write Once, Read Many) optical technology, an unalterable file is created; the document can be revised and updated, but a tamper-proof audit trail, back to the original document, is left behind.

## Optical Storage Today

**M**OST OPTICAL STORAGE DEVICES record data on a thin film by burning microscopic holes (called pits) in the film with a laser. The data then is read by a low-powered laser device in much the same way old paper tape and card readers interpreted information — by using reflected light to detect the presence or absence of a hole. There are three types of optical storage methods currently being used commercially: prerecorded, writable and rewritable.

Prerecorded optical storage, called CD-ROM (Compact Disk-Read Only Memory) is, as the name implies, read-only; data can be read but not altered. It's suitable for distribution of large informational databases that aren't expected to be updated constantly. For example, as a reference library, one CD-ROM disk can accommodate an entire encyclopedia set (text and graphics combined).

CD-ROM is the most economical form of optical media for mass distribution of databases. After the master disk is prepared, the cost per copy can be under two dollars each for a large-scale circulation. Its multimedia capability also makes it ideal for interactive training and learning environments.

WORM optical storage, is the most common form of optical media in use today. These devices allow one-time writing and unlimited reading (retrieval) of the stored data. While the data, once recorded, can't be overwritten or erased, it can be updated by writing a new file elsewhere on the disk and linking it via software to the original file. When a read operation is initiated, the new file is retrieved in its place. This all takes place transparently — the user is not required to know where the different parts of the file are stored on the disk or even that the file has been split up.

WORM technology is perfect for archiving and long-term storage of information. With its life-expectancy much longer than magnetic tape it does not require post-storage processing time to protect critical data. And, because a master disk isn't required, WORM is also an economical alternative to CD-ROM for small scale distribution of databases to the field (in applications where only a few copies are needed).

WORM fills a previously open niche in computer mass storage applications — permanent recordkeeping — where data can be updated but protected against alterations to the original input. Because of its tamper-proof audit trail, businesses, schools



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# **R**eusable optical media can be a viable replacement for magnetic media in extremely large data storage applications where access time is not as important as storage capacity.



and government agencies are beginning to accept WORM-stored data as a replacement for paper documents.

Rewritable (sometimes called erasable) optical is the newest type of optical storage device and is just now beginning to have an impact on commercial computer systems. The reusable optical medium can be a viable replacement for magnetic media in extremely large data storage applications where access time is not as important as storage capacity or storage protection.

However, optical access times are continually improving and at this writing some have achieved access rates parallel with lower-end Winchester drives. As access times improve and the cost of optical reusable media come down, this storage medium should become the standard for large-capacity data recording and storage in applications where the stored data is frequently changed or updated on a continuing basis.

With its huge storage capacity, optical erasable media also are well suited for daily system backup duty. Rewritable optical storage units provide the same read and write capabilities as magnetic storage and also permit integrated storing of text along with other data types.

There are, as far as I know, three different types of erasable optical media methodologies now being developed, but thermomagneto-optical is the only type commercially available. This is an optically assisted form of magnetic recording that works by using an absorbed laser light to heat selected spots on a recording surface. When the spots are heated, their coercivity rating is reduced making the spot susceptible to magnetism. A magnetic field can then alter the magnetic domains on the disk surface (at the spot); this is the method employed for writing

and erasing data. When the laser beam is removed, the heated area (spot) on the disk returns to normal temperature, and its coercivity returns to its normally high state. It is now, again, resistant to magnetism, making the recorded data stable and unaffected by any external magnetic force.

The stability of the stored data results from the high coercivity of the alloy used in the recording layer. As an example, coercivity, which is measured in Oersteds (Oe) and indicates the alloy's resistance to magnetic field changes, is in excess of 4000 Oe on optical erasable media as compared with a coercivity rating of about 300 to 700 Oe for standard floppy disks and 1000 Oe for Winchester disks. When the temperature of the thermomagneto-optic recording layer is raised to about 200 degrees Celsius (392 degrees Fahrenheit), its high coercivity temporarily lowers, and a weak magnetic field is able to affect the recorded data bits. When the temperature is returned to normal, the bits are once again in a stable state.

## Late Breaking Developments

**N**EAR THE END OF last year, several vendors announced the introduction of disk drive units that can handle both WORM and rewritable media in the same drive unit, on an interchangeable basis. Some of these units are available and shipping. Currently, there is R&D work under way to add a recording capability to CD-ROM; announcements on these units should be forthcoming.

Digital Paper, developed by ICI Imagedata, is opening a new frontier in flexible, nonerasable (WORM) optical storage media. It provides new advantages in storage capabilities and the cost of optical material. It also provides huge data storage densities equal to those of optical disks and this technology enables digital paper to be stamped into floppy diskettes, inserted into cassettes, or cut into lengths as tape. In tape format, the cost is less than a half-cent per megabyte of stored information (cheaper than any computer-grade storage media currently in use).

Digital Paper is a dye polymer optical recording material coated on a polyester-based substrate. Data is recorded on the media using a solid-state laser of the kind used with rigid optical disks. Recordings are indelible and have a 20-year life expectancy rating. Diskettes and tapes using digital paper recording media can hold unprecedented data densities. For example, a 2,400-foot reel of half-inch digital tape can store approximately 600 GB of data. Only the resolution restraints of current laser writing equipment prevents much higher data density achievements from being obtained.

ICI is licensing digital paper media for use by tape and disk drive manufacturers developing optical digital devices with faster access and transfer rates. Recently, I've learned that Dow Chemical is also developing similar media, and it's possible that Dupont may also be working on a competitive project.

The first optical tape drives using digital paper were devel-



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**O**ptical media are rugged and “hardy” when compared to fragile magnetic media and have a greater usable life expectancy—some manufacturers promise up to 100 years.

.....

oped by Creo Products Inc., (Burnaby, B.C., Canada). In December, a working Creo model 1003 tape drive was delivered to the Canadian Center for Remote Sensing in Ottawa. The 35mm optical tape has a storage capacity of one terabyte (1,000 GB) on a single 880 meter (approximately 2,800 feet), 12-inch reel. This amount of storage capacity is equal to 5,000 conventional magnetic tapes, or 1,000 double-sided 5 1/4-inch optical disks, or 1 billion sheets of standard 8 1/2-inch by 11-inch paper. The archival life of the tape is about 15 to 25 years.

The Creo drive takes an average of 28 seconds to randomly access any byte on a full tape and has a sustained data transfer rate of up to 3 MB per second. Stored data is fully protected via the drive's forward error correction capability. A non-contacting read and write head methodology is employed.

Creo spokesman Lou Misshula says that commercial shipments of Creo optical tape drives will commence in May. Several industry-standard interfaces are available.

LaserTape Systems Inc., (Campbell, CA) is in the process of developing an optical version of the popular 3480 standard tape cartridge. Using the same ICI Digital Paper media as Creo, this WORM cartridge drive will hold 50 GB of data with an average access time of 15 seconds. Fifty GB is equivalent to the capacity of 250 standard 3480 cartridges or 23 million standard typed pages of text. The drive includes an autoloader for multiple cartridges (up to 10) and utilizes standard SCSI and SCSI-II interfaces. The initial product has a 3 MB per second sustained data transfer rate.

According to LaserTape's President, C. Allan Conover, they have developed a technology that allows the scanning of laser

beams across a track on optical tape without mechanical motion. This allows LaserTape to economically achieve a higher transfer rate than many other high-capacity products. It's intended that future products will be able to double or quadruple the current transfer rate while maintaining compatibility with the initial product.

The 3480 optical cartridge tape drive is still in the R&D stage. It is expected to be available sometime in 1992.

A flexible optical disk that employs the digital paper media is under development at Bernoulli Optical Systems Company (BOSCO). The 5 1/4-inch drive features an average access time of 40 ms with a storage capacity of 1.5 GB. Storage costs for the media are estimated at three cents per megabyte.

The initial R&D phase for the floppy drive has been successfully completed, and ICI Imagedata is now entering the final phase, which will lead to commercialization. Bernoulli, however, recently ceased its research and development efforts on this drive, and for the time being at least, decided not to proceed to the production phase. ICI has now focused continuing development of the optical floppy disk drive in the Asia/Pacific region. When this product will be commercially available is not known at this time.

## Optical Overview

**A**S DRIVE DEVELOPMENT COSTS are recaptured and optical media go into mass production, optical devices of all types will be less expensive per megabyte of storage than magnetic devices. In the case of CD-ROM and WORM, users gain the additional advantage of data that's protected against accidental erasure. Optical media are rugged and “hardy” when compared to fragile magnetic media and have a greater usable life expectancy. Because optical disks do not require special environmental protective measures, they are removable and can be taken off line and locked up for security.

Today, hardware and software interfaces for connecting optical drives to standard computer systems are commonplace. These bridges make the use of optical technology transparent to the user (and the computer). The optical units are accessed as if they were magnetic storage devices.

The three types of optical storage technologies do not compete against each other. Each has a unique appeal, and each has its pluses and minuses; as such, each is ideal for specific kinds of applications. As optical storage technology continues to evolve it will bring new and exciting dimensions to data storage and allow computer automation to make new advances into uncharted territory. Perhaps one day, we can move all that data currently stored in billions of brimming file cabinets to a few sheets of digital paper.

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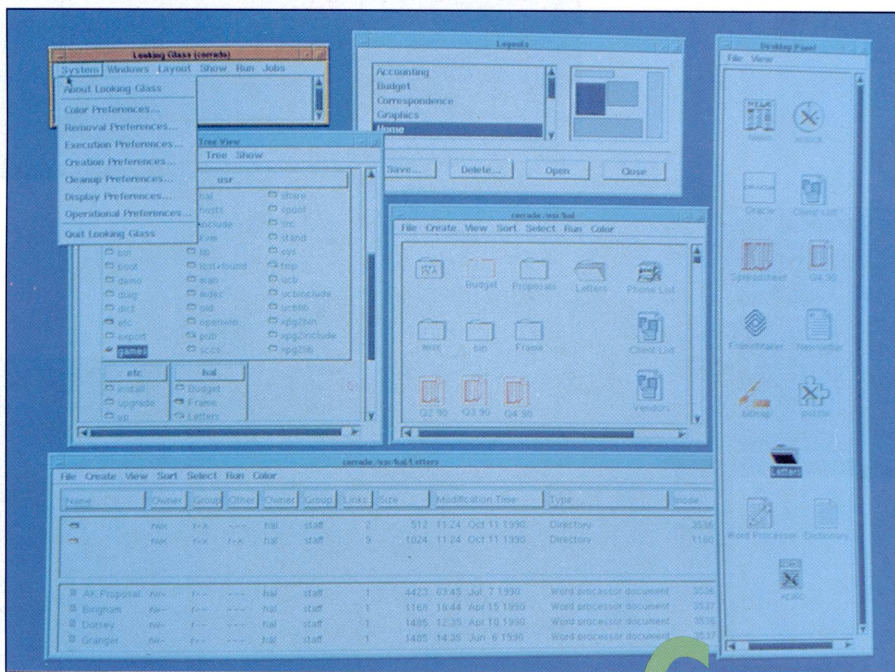
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## Looking Glass From Visix Software Can Turn Your UNIX Wilderness Into A Desktop Wonderland

Getting organized isn't always easy. Staying organized is even harder. Take for example the pile of paper work in your in bin that grows steadily. If you use a flavor of UNIX and work with programs that access multiple files in multiple directories, you might be feeling a little disorganized, too. Looking Glass from Visix Software Inc. (Reston, VA) could help you keep your head above water in the world of organizational computing.

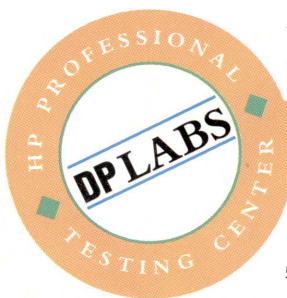
Looking Glass is a graphical user interface (GUI) and desktop organizer for your workstation or X terminal. It lets you arrange and manipulate your personal workspace so that you can access

the programs, files and directories you use most simply by clicking on icons and using pull-down menus.

## Installation

We installed Looking Glass version 2.0 on our HP 9000/834 workstation. You need approximately 3 MB of available disk space to load and install Looking Glass. There are two installation procedures for Looking Glass — standard and custom.

The standard installation procedure installs Looking Glass into standard system directories (**/etc**, **/usr/bin**, **/usr/lib**, and the X Window System font directories) and assumes a standard system

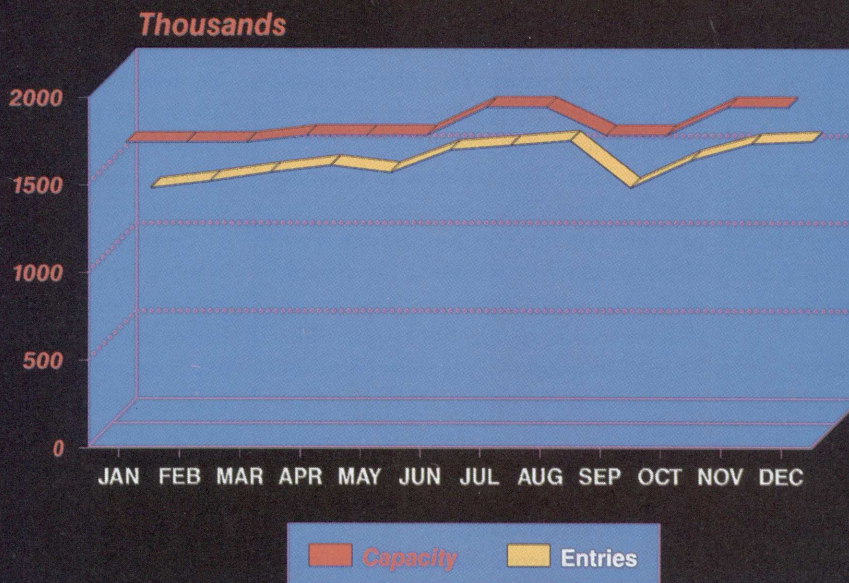


**By George T. Frueh**



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The Capacity Trend Analysis feature is part of the Introductory Package of *DBGENERAL*, version 6.1, scheduled for release this summer. *DBGENERAL* users with our Annual Maintenance Agreement will automatically receive the CTA feature as an enhancement.

*DBGENERAL*'s Capacity Trend Analyzer is the solution in determining dataset capacity requirements. It provides you with insight into specific dataset capacity needs, indicates periods of increasing or decreasing growth, helps anticipate additional disk requirements and allows you to increase productivity. For more information on the Capacity Trend Analyzer and a **FREE** trial copy of *DBGENERAL*, or any of our other innovative software products, please contact a Bradmark representative at 800-275-2723. Let the Capacity Trend Analyzer set the trend for your capacity management needs today.

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configuration. The custom installation procedure allows you to install Looking Glass into the directories you choose.

The standard installation procedure is used if you have super-user access and you're installing Looking Glass on a standalone system or on a networked system with its own disk drives. We went with the standard installation procedure.

The instructions were straightforward. Once installed, we started Looking Glass by changing to the Looking Glass data directory `/usr/lib/lg` and typing `lg`.

## Peer Into The Looking Glass

The look and feel of Looking Glass is based on the OSF Motif user interface guidelines. Because they make use of the X Windows environment, most Looking Glass operations require a mouse (as opposed to a March Hare or Cheshire Cat), but some can be controlled using the keyboard.

After installing Looking Glass on the 834, we executed it from an HP 700/X terminal with a color monitor. When you execute Looking Glass, a startup Global window appears followed by optional additional windows.

Startup options allow you to open specific directories at startup time and control the program's appearance and operation. You can include these options in a login shell or on a command line.

The Global window lets you open Directory windows and the Desktop Panel to set your preferences for how Looking Glass operates. You can run a terminal emulator and the Icon Editor.

The Directory windows display the contents of a directory. You can access a Directory window from the Global window pull-down menu's Open Directory option. Then you can type the path and directory you want to access, or select one of the directories displayed in the window.

From a Directory window, you can open and close selected directories and files, launch files, move and copy files, and remove directories and files. You can view objects in a Directory window by their name or icon, or in a wide format that contains information about each file.

The color of an icon also can be controlled.

Frequently used programs, files and directories are placed in the Desktop Panel and are easily found through use of identifying icons. To activate a program, file, etc., you click on its corresponding icon with a mouse.

The Tree View window in Looking Glass lets you view a condensed version of a file system. You can use the Tree View window to browse a file system, as well as select directories that are in different areas of the file system. The Tree View window only shows directories, but you can open a Directory window for any selected directory from the Tree View window.

## Icon Be Organized

Looking Glass icons are images that represent directories and files in your system. You can place an icon on the Desktop panel and position it anywhere. If you're familiar with any of the draw or paint programs available, you'll feel very comfortable using the Icon Editor.

The Looking Glass Icon Editor is a

standalone application to view the Looking Glass icons in your system, edit existing icons and create your own on a bit-by-bit basis. You can access it from the Global window. Looking Glass icons are stored in files called icon galleries. When you run the Editor, the Gallery window `lg_icons.d` appears. This gallery of icons contains 500-plus icons from which to choose and modify.

Certain characteristics are represented in more than one icon design. Icons with the same design make up an icon family. For example, icons with one fold in the upper right corner represent data files that may be opened by more than one application. This type of file could be a text file capable of being edited by more than one editor or word processor.

Icons with two folds in the upper right corner are also data files, but contain data in a format that's more likely to be meaningful to the application that created them.

The folder icon represents a directory. Within this family, there are various types of directories. For example, the picture of a house on a folder represents your home directory. When a directory is opened, its folder icon is fanned to make it appear opened.

We created our own icon in the shape of a sine wave using the tools within the tool palette. The palette includes a selection tool, a lasso tool, a fill tool, a pencil and eraser, a line tool, and tools to draw ellipses and rectangles. Once you create your icon, you can save your work in the same gallery or in a different one.

The user manual is complete and shows you how to get started with Looking Glass. If you're unfamiliar with Windows, a mouse, or the OSF/Motif user interface, chapter two will save you from going mad as a hatter. Chapters also are included on managing directories and files, running programs and getting help.

If you want to organize your UNIX environment, you'll find that Looking Glass replaces UNIX commands with an easy-to-use icon and mouse-driven interface. New and seasoned UNIX users will appreciate the freedom and flexibility that Looking Glass provides. ■

## Looking Glass

**PLATFORMS:** Most UNIX workstations, including HP Apollo, DEC, IBM, Data General, Intergraph, Mips and Sun Microsystems.

**PRICE:** \$795

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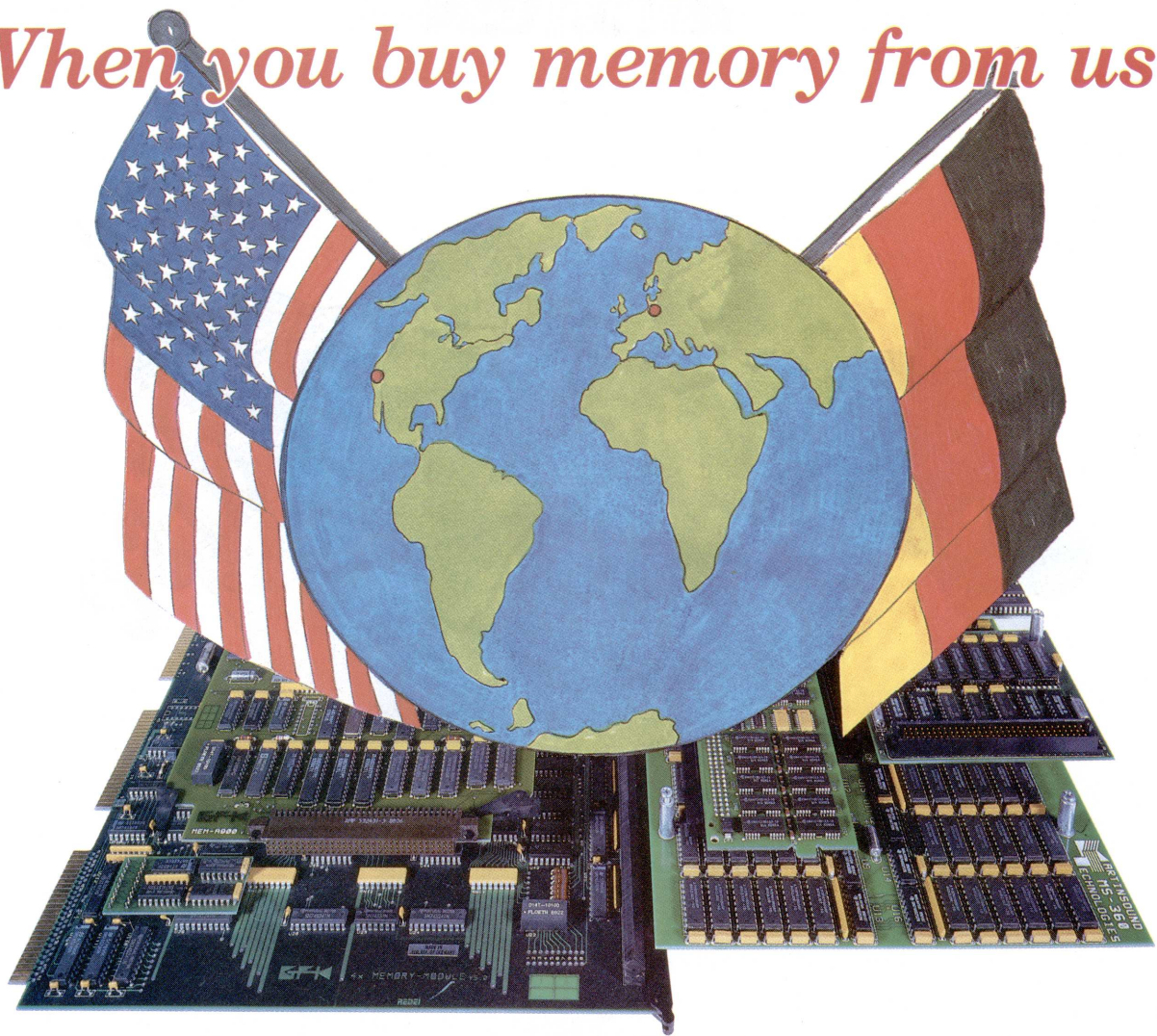
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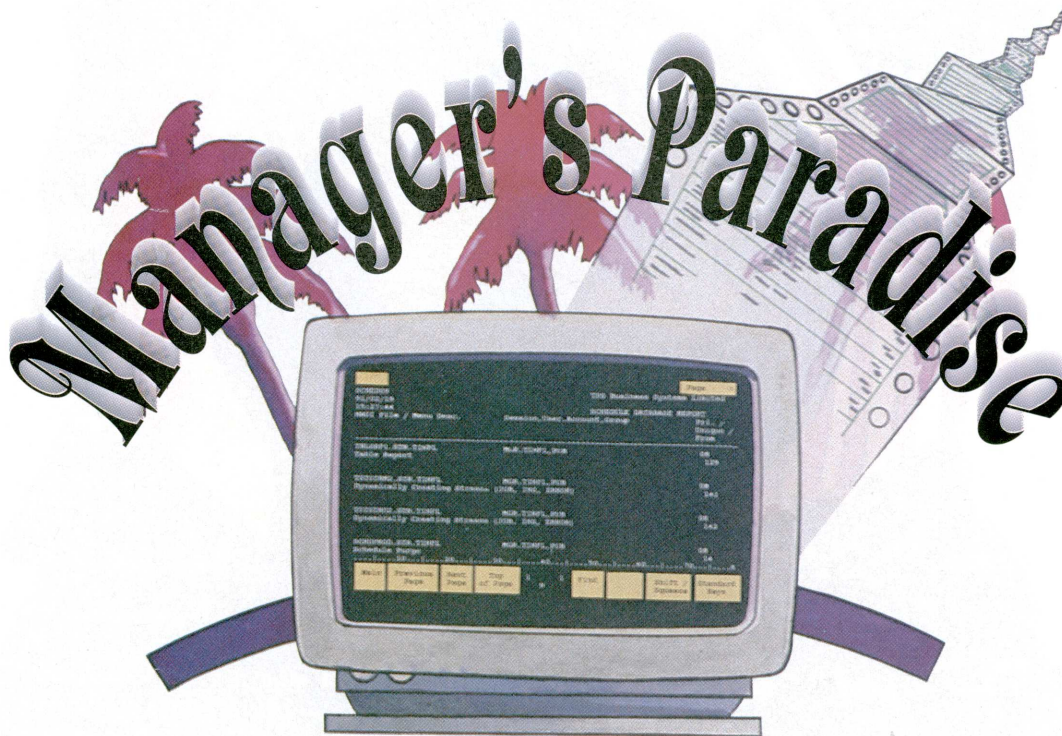
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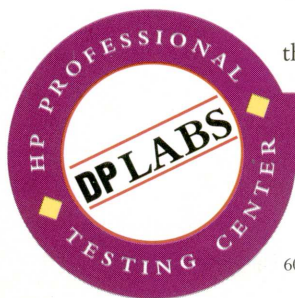
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Consider the time it takes to send a report from your HP 3000 to the line printer, walk to the printer, pick up the report and walk back to your desk — that is, if the line printer is available and isn't out of paper. Once, back at your desk, consider how long it can take to locate and circle every occurrence of a word or phrase within your report.

It adds up, all this waiting in line, all those painstaking proofreading tasks. If

you could eliminate half the time you waste walking and waiting, not to mention worrying over your printouts, you might just eke out that Hawaiian vacation you've been planning. MAUI Manager (MPE Application User Interface) from TPS Business Systems could help you out.

MAUI Manager is a software utility for the HP 3000. In fact, it combines several utilities, including MAUI Vision



**By George T. Frueh**



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and MAUI Vision Plus, to improve your interface with MPE and your application software.

MAUI Vision Plus consists of an online report management utility, MAUI Menu/Windows, the MAUI Command Language, and the option of full security with MAUI Control. MAUI Vision is a utility that lets an end user view a report on his terminal that normally would go to a line printer. This lets the end user gain online access to a report, and then print any portion of that report on the printer.

### Installing MAUI Manager

We installed MAUI Manager on our HP 3000. After setting up the TPSMAUI account, we restored the setup stream by executing the command:

```
RESTORE *T:@SETUP.PUB.TPSMAUI
```

We restored the rest of the account structure for TPSMAUI and restored all MAUI Manager files by executing the command:

```
STREAM AAASETUP.PUB.TPSMAUI
```

### A Look At MAUI Vision Plus

For purposes of this review, we focused on the MAUI Vision Plus utilities within MAUI Manager. To execute MAUI Vision Plus, you first must execute the relative file statements listed in the user's manual. The UDC **VISION** has been set up in ACCTUDC.PUB.TPSMAUI to make execution of the program more efficient.

After you log into the MGR.-TPSMAUI account, you can execute MAUI Vision by entering:

```
VISION "filename"
```

where "filename" is the ASCII file to be viewed online.

We created several ASCII files to view using EDIT/3000. We were able to read in the files quickly and with no difficulty.

Gaining a hands-on feel for MAUI

Vision Plus and the other MAUI utilities is accomplished easily by reviewing the tutorials included with the software.

To view the tutorials, you first sign on as MAUIDEMO.TPSMAUI. After a short while, a menu appears. The items on the menu include the headings: General Description of the Demos, Selected Topics, MAUI Utilities and MAUI Commands. You also can execute an MPE command from the menu.

Selections are made by pressing the two-digit number next to the item. For example, pressing 03 brings up the MAUI utilities menu. (You can enter 3, followed by the return key, or enter 03 without pressing the return key.)

From the MAUI utilities menu, you can choose MAUI Schedule, MAUI Control, MAUI Vision Plus and MAUI Table Utilities.

### A Report From MAUI

When you choose MAUI Vision Plus from the menu, you can view a variety of reports including an ASCII File Sample (Lotus 1-2-3 Report), an ASCII Sample Report (MS Word Report) and an Accounting Application Sample Report. The Accounting Application Sample Report is an HP 3000 line printer file with carriage controls.

Each report name has a corresponding number next to it. You select a report by keying in the number next to the report name. We keyed in 03 for the Accounting Application Sample Report.

When a report is opened in MAUI Vision Plus, the screen displays the left-most 80 columns of the report. A column ruler is located along the bottom of the report. Function keys F1 through F8 appear below the column ruler along with each function key name. This is the Main function key menu.

You can view your report in several different ways using the function keys. For example, you can look through your report on a page-by-page or line-by-line basis. F5 lets you toggle between Page Mode and Line Mode. In Page Mode, the upper right corner of the screen shows the current page number as calculated by MAUI Vision Plus.

Moving around in your report is easy. You simply use the F2 and F3 keys. You can go forward through your report a page at a time with F3 Next Page, or backwards with F2 Previous Page. To jump to a different page, enter the page number and F3. F2 is used to jump backwards in the same manner.

Moving in Line Mode is similar to Page Mode. Line Mode is useful for jumping to and viewing an exact number of lines that don't fall on a report page boundary or a screen-page boundary. F3 Next Line scrolls up one line, and F2 Previous Line scrolls down one line. Jumping to a specific line is accomplished by entering the line you want and then F2 or F3.

MAUI Vision Plus also has a feature for finding a character string in a report. Pressing F5 Find and keying in the character string you're searching for will do the trick. For example, F5 followed by the word "CANADIAN" will display the first occurrence of this word on the first line of the screen. Pressing F5 again will display the next occurrence of the word.

You can find a character string in both Page Mode and Line Mode. In Page Mode, the number of the page on which the character string is located appears in the upper right corner. In Line Mode, the line number is given.

### More MAUI Magic

Another feature of MAUI Vision Plus is the Shift/Squeeze function. Shift the screen right and left to horizontally change the part of the file displayed on the screen. You also can squeeze the report by specifying the columns you want to view.

Shift/Squeeze is initiated by F3 from the main function key menu. The options that appear on the new function key menu include: Right Full, Right Half, Left Full, Left Half and Squeeze. Right Full causes the screen to shift to the right 80 columns. For example, if columns one through 80 are currently being displayed, F3 — Right Full will cause columns 81 through 160 to be displayed.



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played. The Left Full option works in a similar manner. F2 will shift the screen to the left 80 columns. The Right Half and Left Half options work in the same way, except the screen is shifted to the right or left by 40 columns.

F6 initiates the Squeeze function and the Squeeze function key menu. Here you key in a group of from and to column numbers, which represent the columns that you want to display on the screen. For example, enter "70" in the from column and "120" in the to column and press F2 — Display Report. The data in columns 70 through 120 will appear on the screen. Column 70 will be at the left side of the screen.

You also can enter in a series of "from/to" numbers to display a series of columns next to each other. For example, you could enter the numbers "1, 60, 100" in the "from" column and "20, 80, 130" in the "to" column.

F2 will display columns 1 through 20, 60 through 80, and 100 through 130 on the screen all in a continuous fashion. When you squeeze, the number of columns you specify may not exceed 80.

MAUI Vision Plus isn't only easy to use, but very efficient. The User Reference Manual provides step-by-step explanations for using MAUI Vision Plus, as well as MAUI Menu/Windows and the other MAUI products.

MAUI Vision Plus, for total report management, provides you with such capabilities as menu access and menu customization, programmer-created help screens, simultaneous multiple report viewing, report access security functions and archiving for report retention and historical documentation purposes.

With MAUI Vision Plus, you'll save time and effort reviewing reports, while keeping your paper consumption down to a minimum.

**PLATFORMS:** HP 3000 MPE V, XL.

**PRICE:** MAUI Manager (includes all MAUI products) is \$6,250. MAUI Vision Plus (includes MAUI Command Language) is \$3,750. MAUI Vision Plus with MAUI Command Language and MAUI Control is \$4,950. MAUI Vision on a standalone basis is \$995.

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**FOUNDED:** 1972

**PRODUCT LINE:** HP 3000 software utilities designed to improve the end user's interface with MPE applications.

**OWNERSHIP:** Private

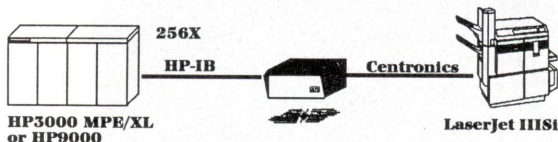
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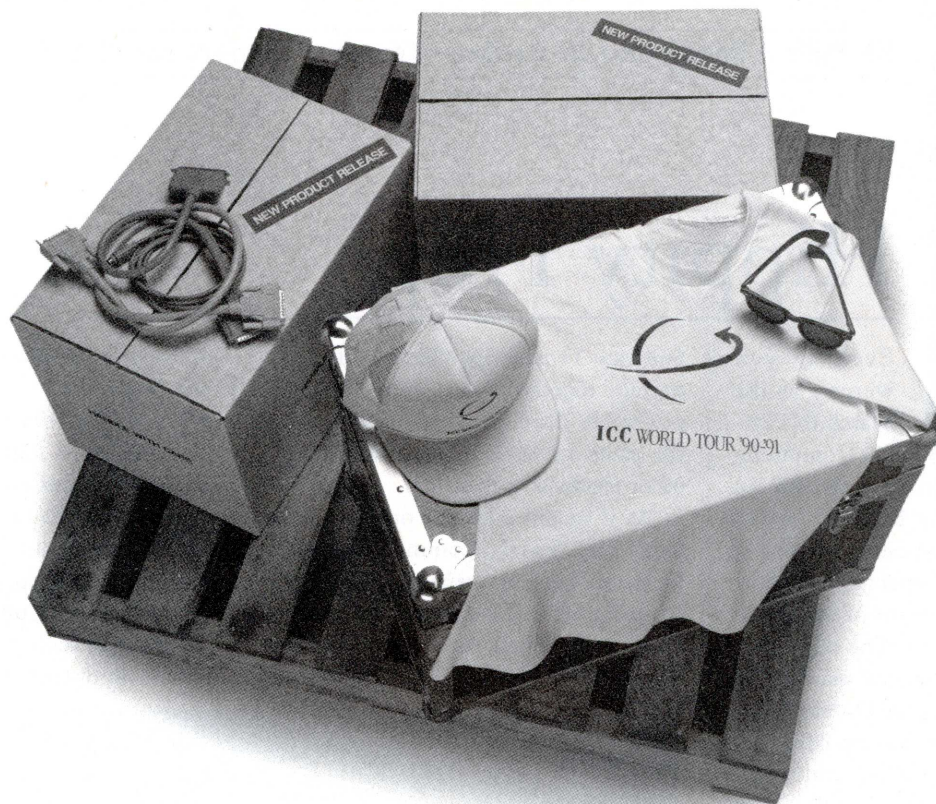
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## MANAGING YOUR HP 3000

John P. Burke

Management Symposium (ICMS) in Reno, NV, hopefully by now you've heard about the drum beating rabbit that showed up during the opening address by Bill Murphy, HP's director of marketing for Networked Systems. The rabbit was sent by Marc Hoff, general manager of HP's Application Support Division, and was a take-off on the battery commercial with the tagline "still running." Emblazoned on a stripe across the drum was "MPE V"; above the stripe was the word "STILL" and below the stripe was the word "RUNNING."

Beyond providing a little comic relief, what does this gesture signal to managers of HP 3000 systems, both Classic 3000s and PA-RISC machines?

### Paradise Regained?

Unlike the last few conferences, HP came to Reno well prepared. So, instead of the acrimony that characterized Boston, Reno turned into a veritable love feast. Was it puff pastry or was there real substance? Time will tell, but two major items stand out, one tangible, the other intangible, though no less important.

- The responsibility for MPE V and related mature software products has been moved to a new Software Technology Center (headed by performance expert, Tony Engberg) under the Application Support Division (ASD), headed by Marc Hoff.

- There appeared to be, on the part of HP, a renewed concern for and interest in the installed base.

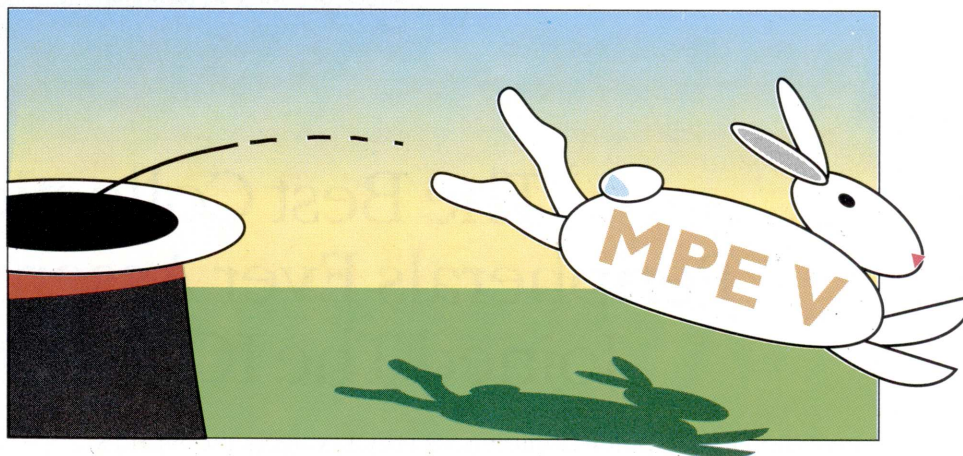
HP asked that we give it until the August INTEREX conference to get the

Software Technology Center's plans and strategy together. Marc Hoff personally pledged to share considerable detail about the plans for MPE V, TRANSACT, and other products at that time.

As if to put a cherry on top of this treat, Rich Sevcik, Commercial Systems Division general manager, held out a tempting tidbit for TurboIMAGE users. During the open forum, IMAGE fans learned that the TPC-A benchmarks

availability of new software for MPE V will be limited.

- It may be increasingly difficult to maintain good staff, especially as traditional data center environments disappear in favor of today's distributed computing and client-server models. Besides, how do you keep young programmers interested in COBOL when there are 4GLs, CASE tools and graphical user interfaces to distract their attention.



will run with TurboIMAGE, that the results were expected to be *very* good and that HP might even reconsider the unbundling of TurboIMAGE. I wouldn't bet the mortgage payment on this one, but it sure is a switch from the Boston debacle.

### Time Waits For No Man

Yes, there were a lot of warm fuzzies all around in Reno. But despite the new security blanket, there are still downsides to staying with the Classic machines, and HP will obviously continue to encourage migration to RISC. Some obvious negatives include:

- New ISV software is likely to be released for MPE XL first with ports back to MPE V later, if at all.

- A corollary to the first point: The

- The degree of HP support for any one product will depend upon the size of the installed base. As that base shrinks, support costs will rise, and the level of support may drop until, eventually, the product is dropped.

All things considered, Reno did wonders for installed base moral. Last year, many managers of older systems and software felt abandoned by HP. This year they could be brought back into the fold. Stay tuned.

### A Scratch In The New Paint?

There was one discordant note at Reno, and it's worth a mention. HP seems to be at odds with some ISVs, particularly the tool or single software product firms. These are company's whose products



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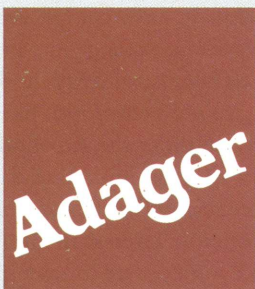
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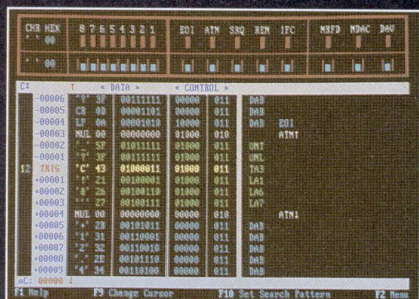
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From what I heard at Reno, it appears that all the vendors want is a little more recognition and inclusion from HP. Considering the value they have contributed to HP customers, this certainly seems reasonable. In the database and CASE markets, HP has been remarkably open with big name, third parties. This provides a competitive market and a wide range of customer options. My sense is that HP should open up all product areas in this way and stop trying to resist third-party competition. If there's one thing computer makers should have learned by now it's that flourishing third-party markets are an important index of a system manufacturer's success.

## When Is Open Really Closed?

Perhaps you have noticed that the word "open" is taking on all sorts of definitions these days, particularly in the computer industry. HP has been preaching "open systems" to the press, the Wall Street analyst crowd and anyone else willing to listen. Yet it also has been working to ensure that its proprietary commercial operating system for the PA-RISC machines (MPE XL) is, in some ways, far less "open" than its predecessor, MPE V. Even though HP is the self-proclaimed leader in the drive to "open systems," with its Architected Interface (AIF) approach, it is, in effect, closing MPE XL to all but a few insiders.

HP makes a good case for the AIF approach by saying that it's just trying to make a safer, more secure system. I al-

most fell for it myself. But then it suddenly dawned on me: When did these people become omnipotent?

The concept is seriously flawed in several ways:

- The cost and availability serve as a barrier to creativity and innovation.
- Committees and bureaucracies are notoriously slow to act, even on good ideas.
- The availability and variety of contributed library software will diminish.
- A committee can't possibly determine what customers are going to want to do with their systems.
- Only functions with wide appeal are likely to be implemented.

Remember the history of the HP 3000 — there are many instances where creative outsiders (often programmers in HP 3000 shops) armed with little more than a complete set of manuals, have leap-frogged HP to create innovative software products that are in use today at thousands of installations. The corporate arrogance displayed by HP in creating the AIFs is astonishing. One unconfirmed report even claimed that the AIFs won't be offered for sale to end-user sites (even if users are willing to pay the price—\$2,000-\$10,000 per AIF functional group).

Consider the time it takes a big bureaucratic organization like HP to implement a good idea: Old-timers will recall a time when there was no CONSOLE command. With DEBUG and the information then available on MPE system internals, the effect of the current CONSOLE command was easily achieved. Many people made use of this knowledge years before the CONSOLE command finally made its way into MPE. What about tomorrow's version of the CONSOLE command situation?

Furthermore, the performance tool vendors already have complained about being delayed in rolling out their MPE XL versions because of delays in the AIFs. Is it going to get better? Not likely.

Finally, consider the situation where a problem may be important to only a small percentage of users and, therefore, not of economic interest to HP. For example, did you ever try to reset spoolfile,



job and session numbers without doing, at the minimum, a time-consuming, schedule disrupting, COOLSTART? Do you *like* dealing with five digit spoolfile numbers? I sure don't. More importantly, my operators don't.

The request sounds reasonable enough, yet after more than 15 years of MPE, there's no provision for easily re-setting spoolfile numbers. You could speculate that this is because no one with sufficient clout asked for it. However, under MPE V, it isn't a big deal because with DEBUG and a little internals knowledge, it takes just seconds to reset everything to whatever you want. Even if MPE XL or the new MPE XL native mode spooler addresses this problem, there will be something else that you want very badly to do, but can't, simply because the information you need isn't available.

There is, of course, risk inherent in using system internals information. The rewards can be great, however, for those willing to take an educated risk, to act on their ideas and not wait around and hope HP will do something. You're getting paid, at least in part, to maximize the return on your organization's investment in HP equipment. You deserve to be able to explore all options not just those HP deems appropriate. The tool vendors are, for the most part, stuck. They try to put the best possible face on the situation by saying that the AIFs protect them from charges that their product created a problem, but they're paying a severe price for that protection.

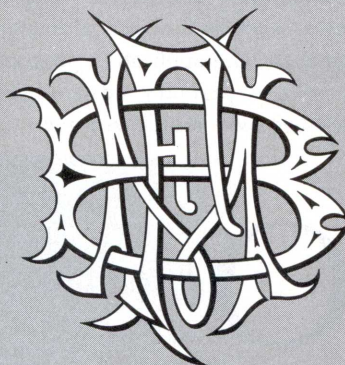
Despite the arguments put forward by Hewlett-Packard in support of AIFs, the bottom line is that HP's policy will have the effect of stifling creativity and innovation in the software market and limiting your options in managing your HP 3000. Of course, if you're already a "player" of sufficient stature and can come up with the ante, you can have a place (late seating and limited menu perhaps) at the MPE XL table. If not, the game is effectively closed to you.

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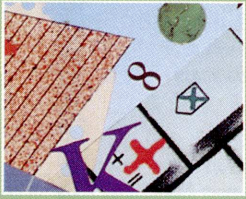
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## PC TIPS

Miles B. Kehoe

### Use NewWave Agents To Execute Repetitive Tasks Automatically

# Special Agent GUI

NewWave, the PC product, was introduced by HP in 1988.

As you probably know, it's a GUI that extends the capability of Microsoft Windows 3.0. It also provides a highly intuitive user interface and lets the user concentrate on his area of expertise rather than on becoming a computer expert.

One powerful feature of NewWave is the Agent, a special application that lets you create and execute repetitive series of tasks automatically.

If you have NewWave installed on your system now, you can start using the Agent right away. If you don't have NewWave, perhaps the capabilities described here will be interesting enough that you'll want to go out and get your own copy. I know the more I use NewWave, the more I like it.

## Objects And Tools

Before I get to the Agent, there are a few terms you should know that will help you when I start sounding like a sales representative. Almost everything you see in NewWave is either an object or a tool. These are the fundamental building blocks for all user operations.

A tool in NewWave is like an application program, but it represents a program that normally uses no data files. For example, a terminal emulation program may exist as a tool in NewWave, because it uses no files except perhaps a specific configuration file. The Windows Clock, which uses no files at all, could also be represented as a tool.

Tools always must remain in NewWave's primary window, the NewWave Office. By convention, a tool is represented by a 3-D icon within a small box.

Objects are like data files, except that NewWave links objects to a particular application based on its type. When you click to open an object, the application associated with that object starts. This ability to work with objects as documents rather than with application programs is one of the primary advantages of NewWave over Windows alone.

**O**bjects that are associated with fully integrated NewWave applications can be made up of more than one type of data.

Objects that are associated with fully integrated NewWave applications can be made up of more than one type of data. For example, a NewWave Write document can include text, a Lotus 1-2-3 spreadsheet, and a Drawing Gallery chart all in the same document.

Unlike tools, objects can be stored in the NewWave Office, within the File Drawer, or in any folder. By convention, objects are represented by 2-D icons with a shadow.

## The Agent Task Language

There are two types of tasks you can use in NewWave: Menu tasks and Agent tasks. The primary difference between the two is where you use them.

Both types of tasks are programmed in the same high-level language called the

Agent Task Language, or ATL. You enter source statements; and when you want to execute the statements, you compile them. However, they compile not to machine code, rather, they compile to an intermediate code for quick interpretive execution.

The statements you use within an Agent task are said to be class-dependent because each type of NewWave object or tool can support its own unique statements.

Whichever object or tool is active is said to have the focus. When the focus changes, the statements that are valid may be different. For example, the EMPTY command is valid within the Waste Basket, but doesn't make sense within NewWave Write.

Agent tasks are also state-dependent. Every folder, object, or tool that you use within a task has to be in the same condition, or state, as it was when the task was created. For example, a task that copies a specific document from the NewWave Office into a folder expects the document to be in the folder — that is, in the same state — every time the script runs.

Menu tasks, as you might expect, are tasks that you can associate with the menu bar for a particular object in NewWave. Menu tasks are said to be owned by the application in which they are installed.

You might use a Menu task to perform an action you will need often within a specific folder or an application. In fact, you can specify one of your Menu tasks to start automatically whenever you open the object or tool that owns the Menu task.

Agent tasks are unique objects in NewWave, and they can be executed by



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dropping them on the Agent tool. You can also schedule Agent execution either one time or repetitively using the Agent Calendar.

You can think of an Agent task as a "super-macro," one that can be used across one or more applications. In fact, you can create an Agent task that will open a non-Windows terminal application, download data from a host system, load a Windows application to format the data, and mail the resulting report to NewWave users. Almost any task you can accomplish manually on your system can be accomplished automatically by an Agent task.

### Creating Task Scripts

You can create both Menu and Agent tasks either by recording the steps to be accomplished, or by writing ATL scripts from scratch. In fact, the most likely way you'll create a script is to record the ba-

**A**gent tasks are unique objects in NewWave, and they can be executed by dropping them on the Agent tool.

sic steps, and insert prompts, messages, input windows and other program logic.

When you first create and open a task object, you can record the events that should be performed as part of the task. While the Agent Task is recording, all significant events are recorded. These

events include any menu selections, keypresses, or changes of focus. As the Agent records your events, they appear in the Agent Task window.

A simple task to copy one document from the NewWave Office into the File Drawer is shown in Figure 1.

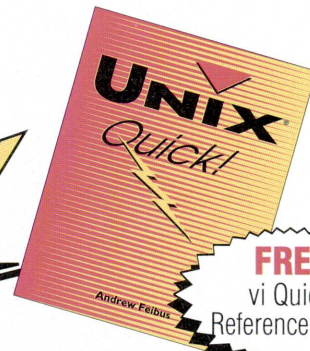
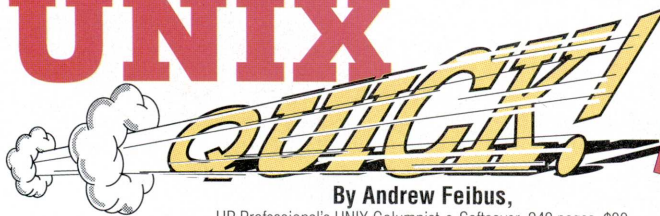
The script in Figure 1, when executed, opens a NewWave Write document called "Document One" in the NewWave Office. It puts the document to the File Drawer, and ends. If Document One doesn't exist, or if the File Drawer is not present, this task will produce an error. Before you can run the task a second time, you need to be sure the right document is in the right place.

A second, more complex task to open the Windows Cardfile application and add a card, is listed in Figure 2. In this task, the Cardfile has been encapsulated as a NewWave tool.

The real work of this task is the

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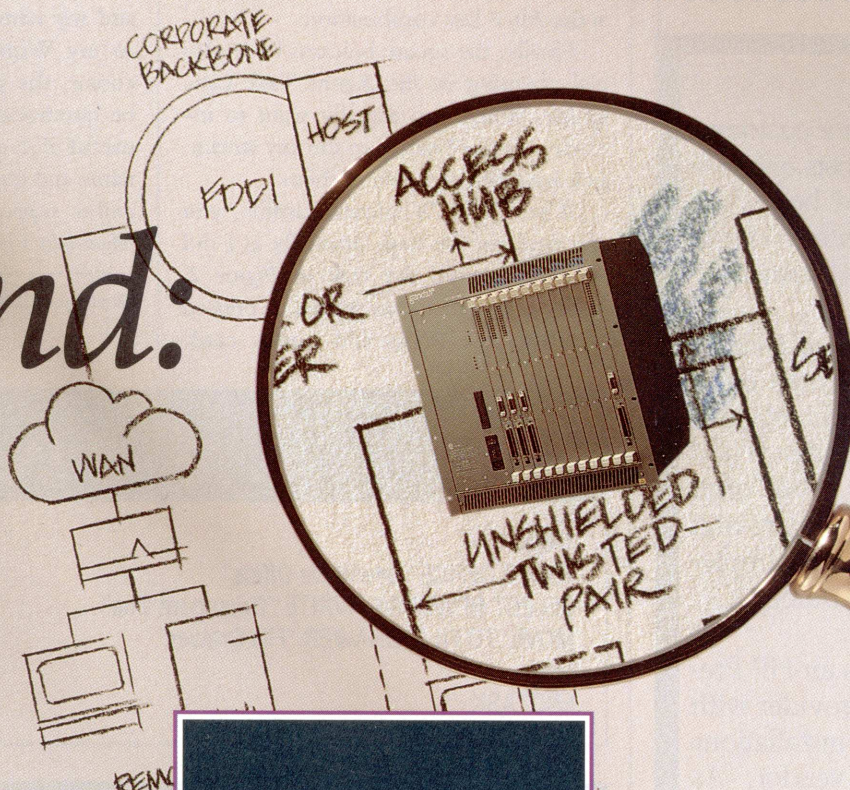
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DO\_KEYSTROKES statement. As its name implies, once the Windows Cardfile has started, the keystrokes listed in the DO\_KEYSTROKES statement are executed.

In the Agent Task Language, there are a couple of special keystrokes. All special keys are enclosed in curly braces. Thus, the F7 function key is [F7]; and the Enter key is [ENTER]. When a tilde precedes a character, the character is executed as an ALT key. The ~f in Figure 2 is the Alt-F key combination.

Finally, the square brackets have special meaning in the Agent Task Language: When you actually want to include a square bracket in the key stream, you have to enter two of them.

If you have Windows Cardfile, you can perform the steps manually as I did when I created the task in Figure 2. When the application started, I pressed function key F7 to add a new card.

Cardfile displays an input window, into which I typed my last name and pressed [Enter].

Cardfile then positions the cursor to the first line on the new card; I typed my full name, pressed [Enter], and typed my Compuserve address on the next line. Finally, I performed the keystrokes to save and exit the Cardfile; these keystrokes are the Alt-F, S, Alt-F, X represented by ~fs~fx above.

When I compile the task, I can then add my name as many times as I want to my Windows Cardfile datafile. Of course, the utility of such a task might be questionable; I'd find it much more useful if I could enter anyone else's name and number. —Miles B. Kehoe is an online support manager for Verity Inc., Mountain View, CA.

Would you like to continue to see articles on this topic?  
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## FIGURE

# 1

```
TASK
FOCUS OFFICE "NewWave Office"
SELECT NEWWAVE_WRITE "Document One"
MOVE_TO FILE_DRAWER "File Drawer"
END
ENDTASK
```

## FIGURE

# 2

```
TASK
FOCUS OFFICE "NewWave Office"
SELECT HPEN_cardtool "Cardfile"
OPEN
FOCUS HPEN_cardtool "Cardfile"
DO_KEYSTROKES "{F7}Kehoe[ENTER]"      &
                                           "Miles B. Kehoe[ENTER]" &
                                           "CIS: [[72466,723]]"    &
                                           "{ENTER}~fs~fx"
END
ENDTASK
```

*Sample scripts using HP NewWave's Agent Task Language.*



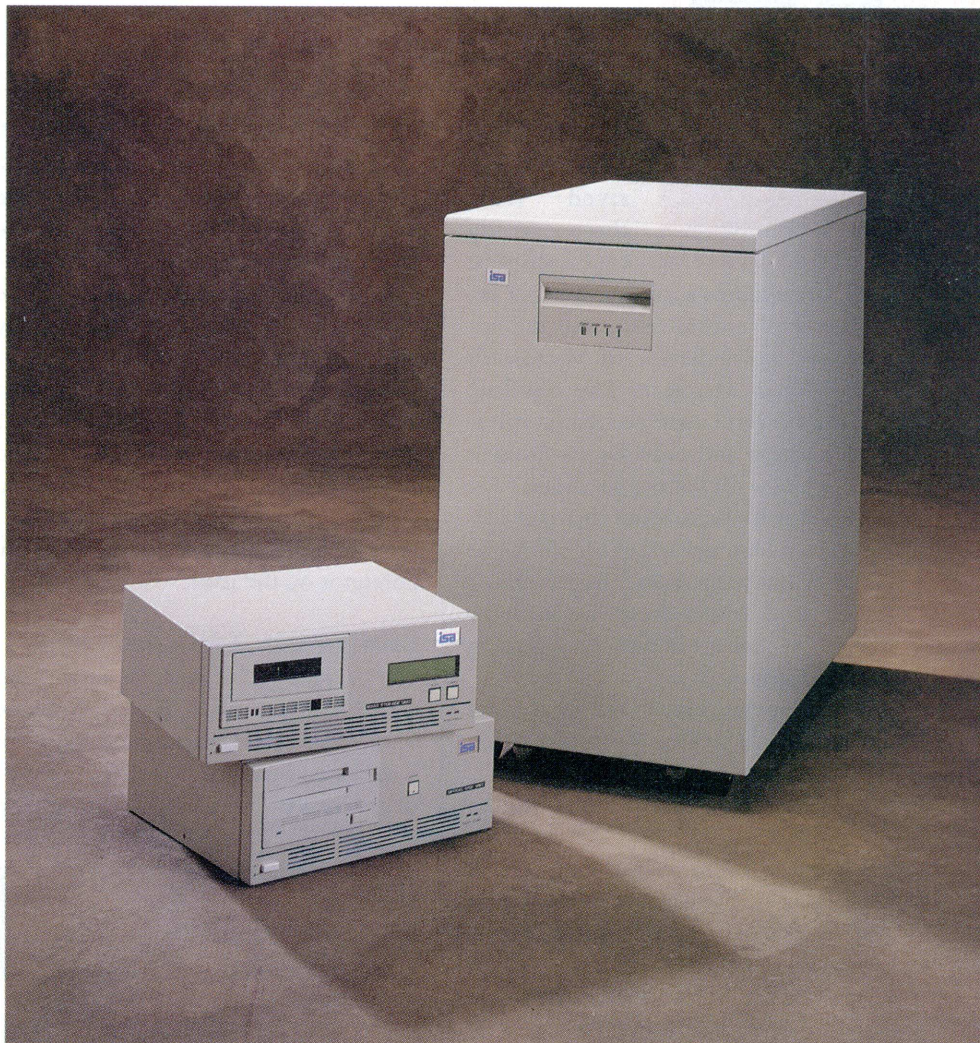
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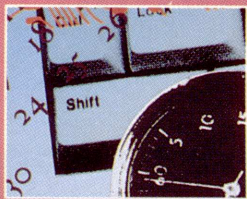
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## HP-UX

Andy Feibus

HP's 3-D window manager, the user interface toolkit from DEC, and the appearance and behavior of Microsoft's Presentation Manager. The resulting window-based user environment is simple to use and provides a consistent user interface for your applications.

What is it about Motif that provides this "consistent user interface?" First, the Motif window manager, **mwm**, adds a frame to all X-based application windows. This frame contains the following parts (see Figure 1):

- A title bar that contains the name of the application. You can move the entire window by dragging the title bar area.
- A border area that permits you to resize the window.
- A window menu button that provides a pull-down menu containing menu operations you can perform (e.g., move, minimize, close).
- A maximize button that expands the window to fill your screen.
- A minimize button that reduces the window to its icon state.

A set of user interface "objects," called *widgets*, are used to create all Motif-based applications. These widgets include push buttons, scroll bars, menu bars, list boxes, selection boxes, and pull-down menus. Twenty-eight widgets are provided with Motif. Many applications now are available that use Motif widgets, providing a degree of interapplication consistency.

Additionally, the Motif window manager provides an *icon box* for grouping icons. Every window that's created has an associated icon. If an icon box isn't

used, only **minimized** windows generate an associated icon; these icons are placed anywhere on your screen. If the icon box is used, the icon for every created window (regardless of whether the window is minimized) is automatically placed into this box.

When an icon box is used, **mwm** adds a border to a minimized window's icon to differentiate it from a displayed window's icon. To restore a minimized icon to its previous (displayed) state, double-click the mouse button while the pointer is on the icon.

### Configuring .Xdefaults

Unfortunately, the best documentation available that discusses how to configure the Motif window manager is the **man** page for **mwm(1X)**. Essentially, configuring **mwm** involves creating and

modifying the two files **.Xdefaults** and **.mwmrc** (in your home directory).

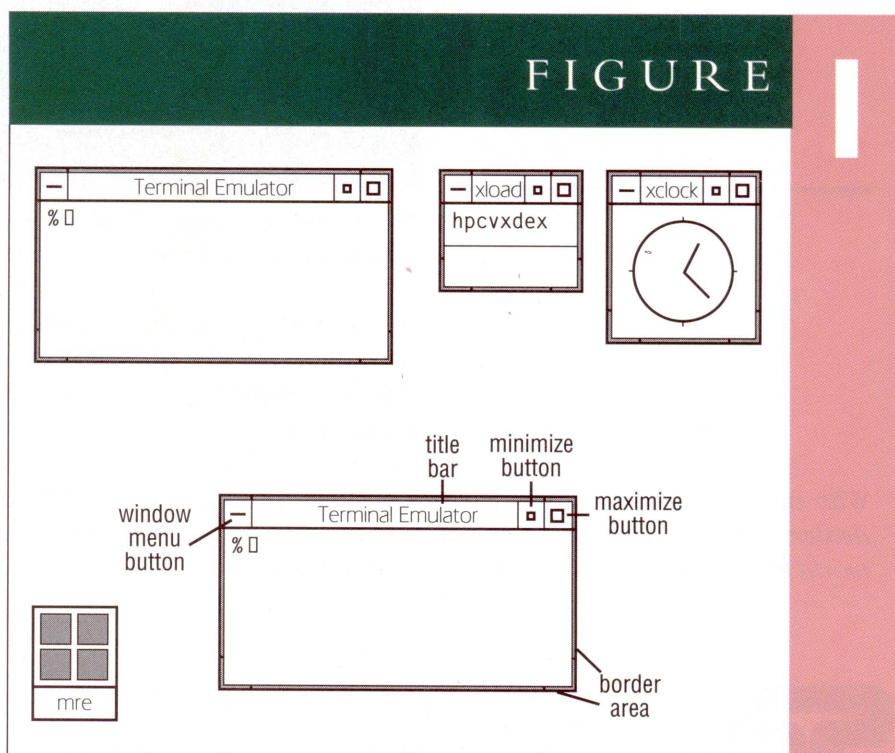
The **.Xdefaults** file is the general X client configuration file. Because **mwm** is another X client (with application name **Mwm**), many of its features are configured from within **.Xdefaults**.

For example, to group all icons into an icon box located on the right-hand side of your screen, add the following lines to your **.Xdefaults** file:

```
Mwm*useIconBox:      True
Mwm*iconBoxGeometry: 1x5-0+125
```

The first line instructs **mwm** to use the icon box to group icons. The second line defines the box to be one icon wide by five icons long and placed on the right side of the screen. If more than five windows are opened (and, hence, more

FIGURE 1







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than five icons are placed into the icon box), use the icon box's scroll bars to view the additional icons.

By the way, changes made to **.Xdefaults** only affect **mwm** the next time that it starts. Until you restart **mwm**, the icon box is not created.

In X, only one window (the *active window*) can receive input from the keyboard at any time. This behavior is called the *input focus* and is controlled by the window manager. By default, **mwm** requires explicit selection for a window to receive the input focus. In other words, you must select the window (make it active) before the window manager will pass characters to it from the keyboard. However, **mwm** does provide another way to make a window active: You can simply move the pointer into that window.

The resource **keyboardFocusPolicy** controls the way **mwm** determines which window is active. The two

choices are *explicit* (you must select the window to make it active and receive the keyboard input focus) and *pointer* (you need only move the pointer into the window for it to become active). If you don't want to select a window to make it active, add the following line to your **.Xdefaults**:

```
Mwm*keyboardFocusPolicy: pointer
```

And, if you want, you can configure **mwm** to automatically *raise* (make unobscured) the active window if the pointer remains in the window for a certain period of time. For example, if you want to raise the active window once the pointer remains in that window for longer than one-half second, add the following lines to your **.Xdefaults**:

```
Mwm*focusAutoRaise: True
Mwm*autoRaiseDelay: 500
```

The unit of measure for **autoRaiseDelay** is milliseconds; in the example, 500 ms is specified.

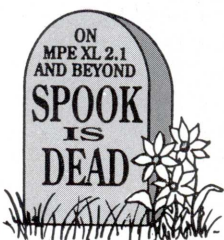
With **mwm**, instead of (or, in addition to) raising the active window, you can differentiate the active window by changing its border color. For example, if you want the active window's border to be blue (with white lines and text) and the border for all inactive windows to be white (with black lines and text), add the following lines to **.Xdefaults**:

```
Mwm*activeForeground: White
Mwm*activeBackground: Blue
Mwm*background: White
Mwm*foreground: Black
```

When a window is created, the window manager determines the window's location within the screen. **Mwm** provides two scenarios:

■ **Mwm** can automatically place the window at a location based on the initial window configuration geometry (i.e.)

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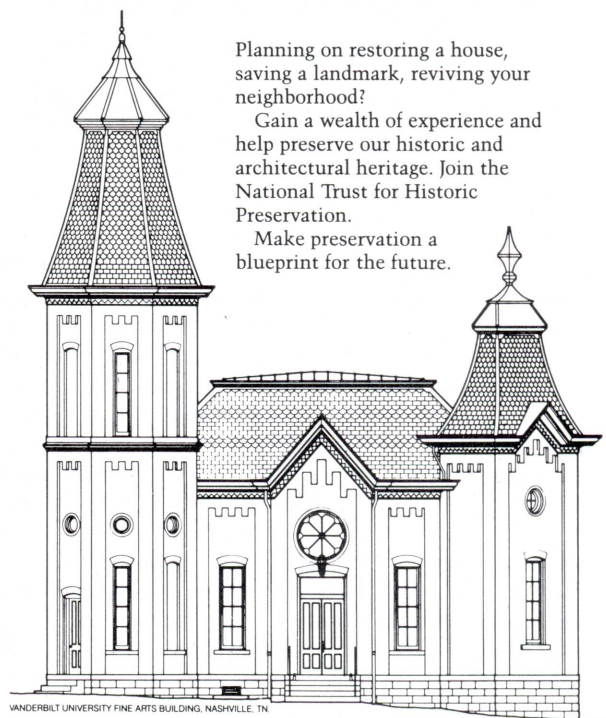


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# With the client- Decoration resource, you can control which parts of a client's window frame are displayed.

the **-geometry** option. This scenario is the default method for window placement.

■ You can interactively place every new window created. To configure **mwm** to use this scenario, add the following line to your **.Xdefaults**:

```
Mwm*interactivePlacement: True
```

When a new window is created, the pointer's cursor shape changes to indicate that you are placing a new window and that you must select the location for this window's top-left corner.

I usually have trouble placing the pointer on the border area of a window to do a resize operation. You can change the width of this border (the default is 10 pixels) by adding a line to **.Xdefaults** that is similar to the following:

```
Mwm*resizeBorderWidth: 15
```

## Decorative Accents

With the **clientDecoration** resource, you can control which parts of a client's window frame are displayed. This resource, which can be set on a client-by-client basis, is specified as a list of frame parts (decorations) to include in the frame. If a decoration is preceded by a minus sign, that decoration is removed from the frame. The possible frame decorations are:

```
all      Include all decorations (default)
border   The window border
maximize The maximize button (includes title)
minimize The minimize button (includes title)
resizeh  Border resize "handles" (includes
         border)
menu     Window menu button (includes title)
title    The title bar (includes border)
none     No decorations
```

For example, to remove the maximize and minimize button from the windows created by the client named **xtock**, add this line to **.Xdefaults**:

```
Mwm*xtock*clientDecoration:
all -minimize -maximize
```

Changing the client decorations does not limit which functions may be performed on a window. For example, removing the minimize and maximize buttons does not remove these choices from the window menu.

In the same way that you specified **clientDecoration**, you also can decide what functions **mwm** can perform for a client. The resource for this control is **clientFunctions** and the following functions are possible:

```
all      Include all functions (default)
resize   Resize the window
move     Move the window
minimize Minimize the window
maximize Maximize the window
close    Terminate the client
none     No functions
```

For example, to restrict **mwm** from performing the **resize** and **close** operations on all **xtock** windows, add this line to **.Xdefaults**:

```
Mwm*xtock*clientFunctions:
all -close -resize
```

By removing the **resize** function for **xtock** clients, the windows associated with **xtock** have neither a resize border nor a **resize** choice under the window menu. Removing the **close** function only removes the **close** window menu choice from **xtock** windows.—*Andy Feibus is an interplatform systems consultant based in Atlanta, GA.*

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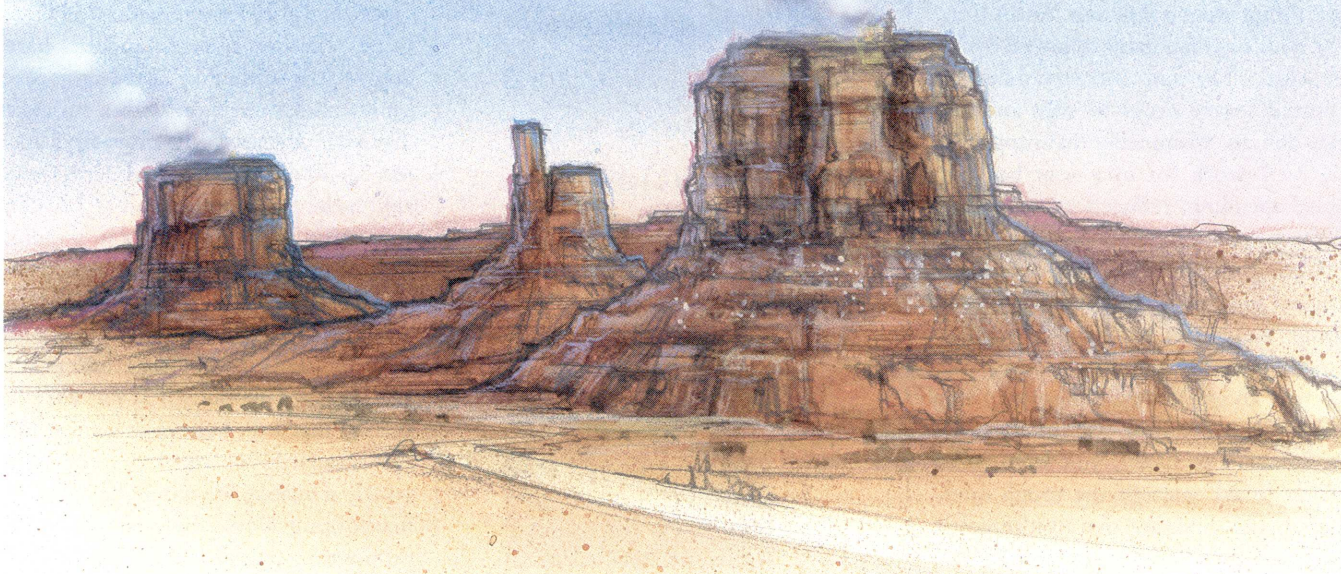
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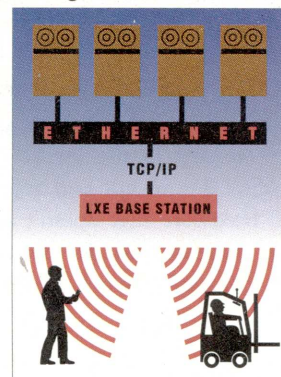
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## NETWORKING

Tim Cahoon

coaster ride. The war in Iraq may be over, but chaos reigns as never before in the Middle East. Crude oil prices fell back to normal for a while (gasoline even approached the \$.99 per gallon mark), then they started inching up again. The stock market went crazy when the war ended, with records being set daily—then things went a little soft. IBM led the way with big blue gains followed by big red losses. The auto industry, likewise, reported severe drops in sales and also large deficits. Companies that supply the Big 3—I work for one—cut back on capital spending, reduced expenses, and in many cases, even cut heads.

I bring up all this gloom and doom only to provide a frame of reference. Tough times can teach us important, though sometimes harsh, lessons. The best way to get through them is to step back and review your current situation. To do this effectively, you have to be willing to ask yourself the tough questions: Is the direction that you're going really beneficial to your company? If the company were yours and the money were coming out of your wallet, would you do what you're doing today? Could you accomplish the same objectives using less elegant, possibly even "nonstandard," methods?

### Do They Still Burn Heretics?

Standards and technology play an important part in the future of our networks. We accept and reject software and hardware that doesn't support current official and de facto standards. We constantly work toward our goal

## Damn The Standards, Full Steam Ahead

# Open Heresy

Lately, the U.S. economy has been on an erratic roller-

of having *anything talk to anything*. Our dream is to connect and interconnect all the devices we have spread throughout the country, and the world. Presumably, if we can accomplish this, our company can be more responsive to its customers and to the ever-changing business environment.

**T**here are many proprietary solutions that can meet your needs that are inexpensive to implement and more functional than standards-based solutions.

The standards we use to implement all of this are *not* cheap. Not only do we pay a price to the vendors, but we also incur significant costs for training and re-education. And don't forget the learning curve, which can be weeks or even months for programmers and application developers. This is not to say that all standards-based systems are expensive, but many do carry a high price tag because of the research and development needed to implement them.

I know this is a heretical question these days, but is the expense of open systems always worth it? Do you really

need all of these standards to make a serious contribution to your company's profitability and future? Not necessarily. There are many proprietary solutions that can meet your needs that are inexpensive to implement and more functional than standards-based solutions. Whether they are appropriate for your environment is something only you can decide.

### The Needs Of The Few

When beginning any project, the size, scope, and user requirements will determine whether a non-standards based approach is warranted. If the project requires interconnection with a variety of dissimilar devices, you'll more than likely use an open systems, standards-based approach. If however, you're installing something like a small LAN in a remote site, you may want to use an inexpensive proprietary solution.

Before any of you adopt the non-standard standard or write letters suggesting that I be burned at the stake, let me say that I do believe in standards. If the standards we needed today were widely available, life would be easier and networking would be a much simpler proposition than it currently is. In spite of this, however, I do believe that there are times and places where you don't necessarily want standards. There is a time for using them and a time when you don't need them. If all costs were equal, I would go standards-based every time, but when they aren't, is the justification there to spend that extra dollar?

### Case History No.1

In the early 80s, I worked for a company in the process of replacing a Burroughs B900 computer system with an HP 3000 Series 44. The conversion effort lasted eight months, but it required us to pass



data nightly from the B900 to the HP 3000. The Burroughs system had no external communications ports. The only datacomm it had was for terminals. The terminals were on a multidrop line that used a proprietary Burroughs protocol.

How do you network a Burroughs to an HP 3000? Burroughs equipment vendors all gave me the same story when they heard my problem. They told me I would have to buy a special box for RJE, as well as the RJE software, and it would all cost only a small fortune. They also were happy to offer installation, consulting and training for a nominal fee. Then, of course, I'd still need to install an RJE solution on the HP. For a project that was going to last eight months, the costs were way out of line.

Instead, I found a fairly inexpensive protocol converter that could convert the Burroughs terminal line protocol to RS232. I reasoned that if there was a way to pump data down a Burroughs terminal line, then there should be a way to capture it on the HP 3000. It wouldn't be pretty, but even if it took a few tries to work, it would be worth it, especially considering the costly alternative.

Through the local Burroughs users network, we found a programmer who could write the needed code on the B900. The HP side, however, was a little more difficult. We were new to the HP community. A lot of phone calls led us to Ross Scroggs of the Typeahead Engine Co., which is now known as Telemon. Scroggs is the guru on HP 3000 serial connections. We told him our problem and he volunteered a 20-line SPL program. He could have sold us one of his engines, but because we really only needed such a simple program he couldn't honestly recommend that to us. This philosophy, in my opinion, is why his business is flourishing and why he's so well respected in the field.

This is how we fitted all the parts together: On the Burroughs, we defined a multidrop line to be used exclusively for the transfer. On the end of the line was the converter box. Out the other end of

the converter box ran an RS232 cable to an HP 3000 terminal port.

To initiate the process, we first ran the HP 3000 program that waited for data to arrive at the terminal port. On the Burroughs, we would then execute the transfer program. If everything worked, the data would leave the Burroughs and end up on the HP 3000. Because we knew how many records were in the file, we could verify the transfer by looking at how many records the HP 3000 received. If there was a mismatch, the transfer would be redone. Normally, it took only two or three tries to achieve a successful transfer.

In today's world of WANS and sophisticated EDI transfers, that doesn't sound very impressive. Yet, for a very low cost, we managed to pass data between two dissimilar systems on a daily basis in order to meet the needs of the business. We only used one official standard, RS232, and several proprietary ones. Total cost was under \$1,000.

### Case History No. 2

The HP 3000 Series 44 described above belonged to a company that published games, books and magazines. Besides being used for business applications the computer was also used for word processing by our game designers, editors and writers. During the publishing process, the finished manuscript would be printed out and sent to the typesetting department. The typesetting operators would then retype the entire manuscript into their system. This left lots of room for errors and took a significant amount of time. If a project was late there was no chance of making up any time during that part of the process.

Someone suggested putting the HP 3000 on a network to transfer the files directly into the typesetting machine. Not only would this be a tremendous time saver, it would reduce errors and allow the typesetting staff to be more creative. The editors could then get their text in final form, insert codes to set their choice of type styles and then have the typesetters dump the text directly into the machine. A program in the typeset-

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ting unit would then translate those codes into ones used by the equipment.

To do this, we purchased an RS232 interface for the typesetting equipment, along with the necessary software, and ran a cable between the two machines. After a few initial bugs were fixed, the process seemed to work perfectly. However, the staff began to notice that random bits and pieces were missing from the text being transferred. These bits seemed to be disappearing as they passed between the HP 3000 and the typesetter. (We didn't know it then, but the HP 3000 terminal ports have a nasty way of missing XON/XOFF's now and again. It seems to have something to do with system load—and, perhaps, cosmic rays.)

Trying all sorts of different configurations didn't seem to solve this problem. What was needed was a device that could talk HP ENQ/ACK on one end and XON/OFF on the other. The perfect

solution was right under our nose. Most, if not all, of our terminals were purchased with printer ports. The datacomm port talks perfect HP ENQ/ACK and the printer port talks perfect XON/XOFF. Using the device control functions of terminal, we could turn on the log bottom function, and anything coming into

the datacomm port would be routed to the printer port. All we had to do was connect the HP 3000 cable to the datacomm port of the terminal and the typesetter to the terminals printer port. Problem solved.

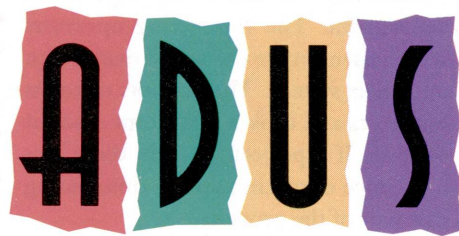
Once again, two dissimilar devices were interfaced at low cost. No standards were needed or used. As you can see, you really don't need fancy standards to make an impact on your company or to get the job done. The solutions can be home grown or be found in a vendor product that doesn't have the blessing of an international standards group. So stop for a moment and take a reality check. It can do you and your company a lot of good. —*Tim Cahoon provides wide area network and HP technical support for the manufacturing operations of a Fortune 500 company, Detroit, MI.*

#### Tim's Tech Tip:

To connect two HP 3000s together and pass files, check out the AFT program, once described as a "Poor Man's DS." It's located in the Boeing TECH account that's part of the Interex Contributed Library. You can do remote logons, MPE commands, and file transfers to systems connected via modem or hardwired. Each system will need a copy of the software.

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**CIRCLE 247 ON READER CARD**



### HDS Designs New Monochrome X Terminals

Human Designed Systems announced three monochrome X terminals, including a low-priced, 15-inch unit designed as a high-performance replacement for standard ANSI and graphic terminals.

The three models have resolutions of 1280 by 1024 and 1024 by 864 pixels, feature a 72 Hz refresh rate and incorporate new, high-performance monitors. The units are designed to meet European ergonomic standards, incorporate features that eliminate screen flicker and provide a high-contrast display with high resolution.

The new models are available in two performance levels — an entry level configuration that provides 18,000 xstone performance, and a more powerful version with 30,000 xstone performance. They range in price from \$1,499 to \$2,699.

Contact Human Designed Systems, 421E Feheley Dr., King of Prussia, PA 19406; (215) 277-8300.

**Circle 396 on reader card**

### SpoolMate Supports HP-UX Systems

Unison's SpoolMate software now supports bidirectional transfer of spoolfiles in an MPE/UNIX environment.

SpoolMate is a report distribution and spoolfile management product. SpoolMate for MPE includes complete printer and distribution control, multilevel priority queuing, preprint analysis of spoolfiles and central console control of network-wide spooling activities.

Contact Unison Software, 675 Almanor Ave., Sunnyvale, CA 94086; (408) 245-3000.

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### IOtech Introduces LAN488 Controller

IOtech introduced LAN488, a new Ethernet to IEEE 488 controller that allows IBM PCs on a Novell network to control IEEE 488 instruments located at remote Ethernet nodes.

LAN488 operates as a node on the Ethernet

LAN and can control up to 14 IEEE 488 instruments. When used with Driver488/LAN software, instruments connected to a LAN488 are operated exactly as if connected to an IEEE interface card inside the controlling PC.

Driver488/LAN, modelled after IOtech's PC/IEEE driver software, Driver488, makes the operation of the network transparent to the programmer. The operating characteristics of Driver488/LAN are identical to Driver488. Driver488/LAN's HP-style commands are accessible from either a DOS device driver interface or a subroutine CALL-based interface. SRQ vectoring in BASIC, C and PASCAL is supported.

LAN488, which includes the LANTEST488 software, is available in two versions: the basic LAN488 with a thick Ethernet connector (\$995), and the LAN488/

TN with thick and thin Ethernet connectors (\$1,295). Driver488/LAN is available separately for \$995.

Contact IOtech Inc., 25971 Cannon Rd., Cleveland, OH 44146; (216) 439-4091.

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### RGB Spectrum Offers Multimedia On Workstations

RGB Spectrum added RGB/View 2050, a video windowing system with a built-in television tuner for workstations. It accepts video from cameras, tape recorders, interactive video disks and video teleconferencing systems, as well as live television from a built-in tuner.

The model 2050 offers dual control of video and tuner functions by software or front panel controller. The front panel controller facilitates the integration of video in a



*IOtech's LAN488 allows IBM PCs on a Novell network to control IEEE488 instruments located at remote Ethernet nodes.*



multiworkstation environment. The 2050 is computer independent and supports all workstations up to 1280 by 1024 pixels.

Compatible systems include HP Apollo, Sun, Silicon Graphics, DEC and IBM, as well as high-resolution PCs.

Contact RGB Spectrum 2550 Ninth St., Berkeley, CA 94710; (415) 848-0180.

**Circle 395 on reader card**

### **Cadre Links Teamwork, Saber-C**

Cadre Technologies Inc. introduced SaberLink, an operational interface between Saber Software Inc.'s Saber-C program development environment and Cadre's *Teamwork* family of CASE products.

Cadre and Saber also announced the signing of a cooperative marketing agreement under which the companies will support each other's sales and marketing efforts to prospective mutual customers.

SaberLink requires *Teamwork/SD 3.1* to operate and is available at no charge to *Teamwork/SD* users. SaberLink is offered on platforms where Saber-C is supported. Currently this includes Sun 3, SPARCstation and DEC ULTRIX, with HP 9000 and IBM RS/6000 support planned.

Contact Cadre Technologies Inc., Providence Division, 222 Richmond St., Providence, RI 02903; (401) 351-5950.

**Circle 394 on reader card**

### **Oswego Software Announces RMB To C Translator**

Oswego Software announced a translator that converts Rocky Mountain BASIC to Microsoft C 6.0. It translates programs written in HP's BASIC to run on DOS computers. The translator runs in MS-DOS, generating code that will run in Microsoft C 6.0.

Because C is a compiled rather than an interpreted language, this translator produces machine level code that may run faster than interpreted code on the same hardware. By eliminating the overhead associated with a run-time interpreter, C programs become

smaller and faster than BASIC.

The new translator includes libraries completing the translation for matrix statements, general mathematics, complex math, string, print/image and graphics plotter statements.

Contact Oswego Software, 155 W. Washington St., P.O. Box 310, Oswego, IL 60543; (708) 554-3567.

**Circle 392 on reader card**

### **PC-Xview 2.1 Supports HP LAN Manager**

Graphic Software Systems announced the upgraded version of its X terminal emulator, PC-Xview 2.1, for PCs. New features include full compatibility with X11 Revision 4, 8514/A display support and additional network interfaces through HP's LAN Manager and Beame & Whiteside's BWKTEL/BWNFS.

PC-Xview converts PCs into low-cost X Window System terminals. PCs can then function as fully compatible seats on the network, accessing and sharing applications and data with a UNIX-based host, workstations and other nodes through the X Windows graphics interface. Users also can move between X Windows and DOS without interrupting their UNIX programs.

X11R4 enhancements include additional font options, shape extension allowing curved edges and X Display Manager Control Protocol support enabling the host to control access to X-servers which provides better security and ease of start-up.

PC-Xview 2.1 is priced at \$445.

Contact Graphic Software Systems Inc., 9590 SW Gemini Dr., Beaverton, OR 97005; (503) 641-2200.

**Circle 387 on reader card**

### **Contemporary Cybernetics Features High-Speed Search**

Contemporary Cybernetics introduced CY-8200-SX, an 8mm tape backup system with fast file search capability. It stores more than 10 GB on a single tape at up to 60 MB per minute and can search 1 GB of data in 17 seconds.

The company also announced the availability of the CY-8500, an 8mm tape drive that stores up to 26 GB on a single tape with transfer rates of up to 90 MB per minute, completely unattended. The CY-8500 is standard with high-speed search and offers compatibility with a wide range of computer systems.

The CY-8200-SX and the CY-8500 are turnkey subsystems that come housed in an external tabletop enclosure with power supply, two-line, 40-column LCD, software and complete documentation.

Contact Contemporary Cybernetics Group, 11846 Rock Landing Corporate Center, Newport News, VA 23606; (804) 873-0900.

**Circle 390 on reader card**

### **Insight Develops Mosaic For Macintosh**

Insight Development Corp. announced Mosaic, a software package that allows Mac users to print documents from any application on HP LaserJet and DeskJet printers attached to a Novell network.

Insight worked closely with Novell in defining the features of the product, which Insight then developed. Novell's NetWare Desk Accessory utility comes bundled with Mosaic for Macintosh.

Mosaic for Macintosh creates new printing options for NetWare for Macintosh customers by allowing Macintosh computers to spool to both PostScript and less expensive PCL-based printers, preserving investments in existing equipment and expanding the pool of available printers.

System requirements include a Macintosh computer with at least 1 MB of memory, and the Macintosh operating system 6.0 or higher. Mosaic for Macintosh works with NetWare are ELS II, Advanced NetWare and Advanced NetWare SFT file servers. It is priced at \$395 for three users and \$595 for 10 users.

Contact Insight Development, 2200 Powell St., Ste. 500, Emeryville, CA 94068; (415) 652-4115.

**Circle 383 on reader card**



## Group 1 Software Releases Postal Discount Packages

Group 1 Software announced CODE-1 and MailStream Plus software for the HP 3000. They are used to code and presort mail to secure the substantial discounts on postage offered by the Postal Service, as well as to speed delivery and reduce undeliverables.

CODE-1 adds ZIP+4 codes, five-digit ZIP codes, carrier route codes and POSTNET barcodes to address lists. It standardizes mailing lists according to Postal Service conventions.

MailStream Plus presorts mail for maximum postal discounts for first, second and third class mail. MailStream Plus also prepares the necessary reports to facilitate the mail acceptance process at postal facilities.

Contact Group 1 Software, Washington Capital Office Park, 6404 Ivy Ln., Ste. 500, Greenbelt, MD 20770-1400; (301) 982-2000 or (800) 368-5806.

**Circle 389 on reader card**

## ASK Introduces INGRES/SmartLook

ASK Computer Systems Inc.'s Ingres Products Division announced INGRES/SmartLook, a product that adds a Macintosh look and feel to host applications without requiring special development for the Macintosh.

INGRES/SmartLook gives MIS departments and Macintosh users a graphical interface to character-based applications developed with INGRES tools without any additional or custom programming. It uses extensions to Apple Terminal Service protocols along with Apple MacWorkStation to transform character-based screens into a Macintosh-style interface.

INGRES/SmartLook is priced at \$395. Contact Ingres Corp., 1080 Marina Village Pkwy., Alameda, CA 94501; (415) 769-1400.

**Circle 385 on reader card**

## Bitstream Launches Type City

Bitstream Inc. revealed details of its first font cartridge product, Type City. It is an open-ended, expandable font cartridge system for individual and corporate PC users seeking a quick way to add typefaces, logos and symbols to business documents.

The expandable Type City font cartridge works with the HP LaserJet (Series II and above) family of laser printers and compatibles.

The Type City system includes a supercartridge (a cartridge containing many

fonts) with a selection of text and headline typefaces, that can be expanded through the addition of low-cost Type City add-on cards.

Price is \$379.

Contact Bitstream Inc., 215 First St., Cambridge, MA 02142; (617) 497-6222.

**Circle 384 on reader card**

## MICOM Boosts X.25 Product Performance

MICOM Communications announced advanced performance X.25 networking products and the MB3 with Improved Performance.

MICOM has given the MICOM Box Type 3 (MB3) packet switches and PADs a performance boost, resulting in a performance increase of roughly 50 percent over the original products. The X.25 products based on the enhanced MB3 platform have benefited from MICOM's Design for Manufacturability (DFM) program.

Contact MICOM Communications Corp., 4100 Los Angeles Ave., Simi Valley, CA 93063; (805) 583-8600.

**Circle 382 on reader card**

## Tektronix Extends TekXpress Family

Tektronix Inc. introduced the XP21, a high-performance 17-inch monochrome addition to its TekXpress family of X Windows terminals.

The XP21 features a 17-inch display with 1152 x 900 resolution, a 72Hz refresh rate and a performance rating of more than 50K xstones. It comes standard with 5 MB of memory expandable to 21 MB, IBM 101-key keyboard and a three-button mouse. Options for all products include DECnet, VT200 keyboards and an A-size tablet.

Supplementing the XP21 at \$2,995, the TekXpress family includes the 16-level grayscale XP23, at \$3,495, and the high-end color XP29 at \$5,995.

Contact Tektronix Inc., Wilsonville Industrial Park, P.O. Box 1000, Wilsonville, OR 97070; (503) 685-2838.

**Circle 381 on reader card**

## Multiport Bridge Employs AMD 29000 Microprocessor

Clearpoint Research Corp. announced its RISC-based, intelligent multiport bridge that combines the power of an Ethernet switch with the flexibility of a local bridge. Employing the AMD 29000 microprocessor, the Little

Dipper delivers protocol-independent networking for LANs.

The Little Dipper provides effective filtering rates of 91,000 packets per second while performing address filtering, network monitoring and Spanning Tree support. The multiport capability of the Little Dipper enables direct connection to Thin-Net and both male and female interface connections of the AUI cabling standard.

List price for the base system is \$7,500. The fully configured Little Dipper, including eight Ethernet ports, lists at \$19,500.

Contact Clearpoint Research Corp., 35 Parkwood Dr., Hopkinton, MA 01748; (508) 435-2000.

**Circle 380 on reader card**

## CDS/SecReview Enforces MPE Security

Chestnut Data Systems announced a new release of CDS/SecReview a security audit and access control system, designed specifically for HP 3000s.

New features have been added including Session Names and Session Password; aging enforcement now can be established. Users can be required to change their session passwords based on a system-wide or an individual password aging period. And, network-related capabilities now are reflected in Audit Reports. A new users interface has been adopted, including "point and shoot" option selection. Together with existing username password control, dial-in port control and the audit reporting capabilities, Price starts at \$1,050.

Contact Chestnut Data Systems, Park Towne Plaza, Suite SO5, 2200 Benjamin Franklin Pkwy., Philadelphia, PA 19130; (215) 557-6607.

**Circle 377 on reader card**

## Mitchell Humphrey Releases PC-Based Reporting Tool

Mitchell Humphrey & Co. released a new PC-based reporting tool, FMS Exec, for use with its Financial Management Systems (FMS). It's designed to work with Lotus 1-2-3, and it provides an alternative for PC spreadsheet users who want to download FMS financial data from the HP 3000 to the desktop.

FMS offers the following features: ability to download data and generate reports from within a Lotus spreadsheet; popup menus, dialog boxes and online help; the option to export a report file to a desktop publishing, word



processing or graphics package and more. Contact Mitchell Humphrey & Co., 11720 Borman Dr., St. Louis, MO 63146; (314) 991-2440 or (800) 237-0028.

**Circle 378 on reader card**

## MathWorks Introduces SIMULAB Software

The MathWorks, a developer of interactive engineering and scientific software products, announced SIMULAB a program for simulating and analyzing nonlinear dynamic systems. Based on X/Motif and Macintosh windowing systems, SIMULAB offers a set of tools for modeling and analyzing dynamic systems including linear, nonlinear, continuous and discrete models. A flexible environment in which systems can be described graphically in block diagram form or mathematically by different equations. Full integration with MathWorks MATLAB numeric computation software for additional analysis and graphics capabilities.

Contact The MathWorks Inc., Cochituate Place, 24 Prime Park Way, Natick, MA 01760; (508) 653-1415.

**Circle 375 on reader card**

## Eventide's WLZ-320 Expands Workstation Versatility

Eventide released its WLZ-320 EtherBoard LAN card, which expands the versatility and usefulness of older HP workstations such as the 9000 Models 310 and 320. And, the card eliminates the need for HP series 200 computers to boot from a local disk.

Compatible and interchangeable with HP LANIC cards, the Eventide WLZ-320 plugs into the DIO backplane bus of series 200 and 300 HP computers. The WLZ-320 includes a ThinLAN BNC connector and therefore doesn't require the MAU required by HP cards. It also enables 310 and older computers designed to be networked via SRM to function on an Ethernet LAN arranged around a server.

List price \$995.

Contact Eventide, 1 Alsan Way, Little Ferry, NJ 07643; (201) 641-1200.

**Circle 379 on reader card**

## Cognos PowerPlay Supports Windows 3.0 And NewWave

Cognos released a version of its PowerPlay reporting and analysis software that supports Microsoft Windows 3.0 and HP's NewWave desktop environments.

PowerPlay 2.0 is an exploration-and-display

tool that automatically presents information from virtually any database, spreadsheet or other data source in graphical form. It enables users to access, manipulate and visualize business data through a series of graphical, mouse-driven "snapshots."

These snapshots organize the data according to critical business dimensions, insulating the user from the complex database structures and unpredictable response times of production databases.

PowerPlay's HP NewWave capabilities include two new icons called PowerPlay Carousel and PowerPlay Projector, which allows users to load PowerPlay views and reports like 35mm slides and display them like a slide show using the projector.

List price is \$850. Host servers are available for VAX and HP computers for \$15,000.

Contact Cognos Inc., 67 S. Bedford St., Burlington, MA 01803-5164; (617) 229-6600.

**Circle 376 on reader card**

## Harris & Paulson Offer PC Backup Solution

Harris & Paulson is shipping ExpressBack/3000 a client-server application that performs unattended, centralized backup of local PC files to HP 3000s. Users with HP 3000 networks installed, don't have to purchase dedicated hardware for backup tasks.

ExpressBack/3000 has an intelligent scheduler that manages backup activity for multiple users. System administrators can define the number of backups to be executed concurrently and the time within which they should be executed. The scheduler then "stagger" backup tasks so that all can be completed without either operator or end-user intervention. Backup activity is monitored with daily reports of backups completed and detail listings of files backed up for each user.

As a client-server application, the server portion runs on any model HP 3000, running either MPE V or XL, with HP IMAGE or TurboIMAGE and support for HP Network Services. The client portion runs on any DOS PC with 640 KB of memory or greater and HP networked services for DOS.

ExpressBack/3000 is priced by size of HP 3000 cpu. Prices range from \$1,500 for low-end HP systems to \$22,500 for high-end systems.

Contact Harris & Paulson Inc., 5299 DTC Boulevard, Suite 300, Englewood, CO 80111; (303) 773-8283.

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## [ CALENDAR ]

### [ MAY ]

**5/20-24:** Swanson Analysis Systems Inc. is sponsoring the ANSYS Fifth International Conference and Exhibition at the Pittsburgh Hilton and Towers, Pittsburgh, PA. Call Jennifer D'Orazio (412) 746-3304.

**5/20-24:** HP's Manufacturing Productivity Division (MPD) is hosting its third annual User's Conference for users of MPD's Manufacturing, financial and maintenance software applications at the San Diego Princess, San Diego CA. Call Silvana Torik (408) 553-3812.

### [ JUNE ]

**6/10-12:** The Computer Security Institute is sponsoring a conference, entitled, "The Security Impact Of Networks, Telecommunications and Office Automation," at the Denver Marriott City Center Hotel, Denver, CO. Call Philip Chapnick (415) 905-2267.

**6/11-14:** NECRUG is holding its Twelfth Annual Eastern American HP Users

Conference at Trop World Hotel and Casino in Atlantic City, NJ. Call Randy Kauftheil, (215) 251-0736.

**6/11-14:** Cognos is sponsoring its first international conference, Cognition '91 at the Anaheim Hilton and Towers, Anaheim, CA. Call (800) 444-5986 or (617) 229-5641.

**6/12:** NTRUG is holding a meeting at the Hewlett-Packard sales office in Las Colinas, TX. Call R. Dale Henderson (214) 517-3585.

**6/12-14:** The Society for Computer-Aided Engineering is holding its first annual CALS/ Concurrent Engineering '91 Conference and Exposition at the Omni Shoreham Hotel in Washington, D.C. Call Ken Malmberg (815) 399-8700.

**6/27-29:** The Independent Computer Consultants Association is holding its 14th annual national conference at the Westin Hotel, Seattle, WA. Call (800) GET ICCA.

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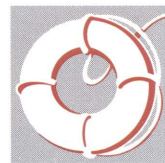
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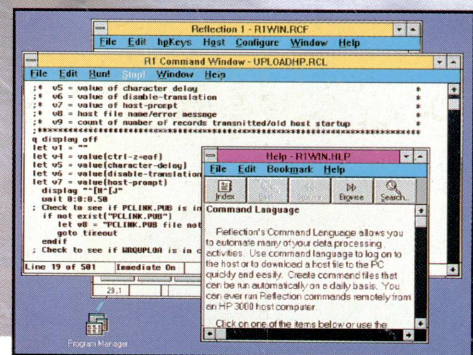
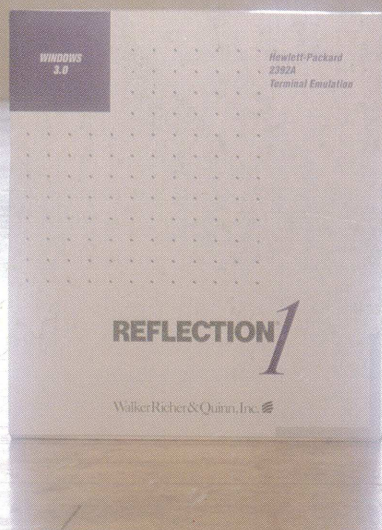
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